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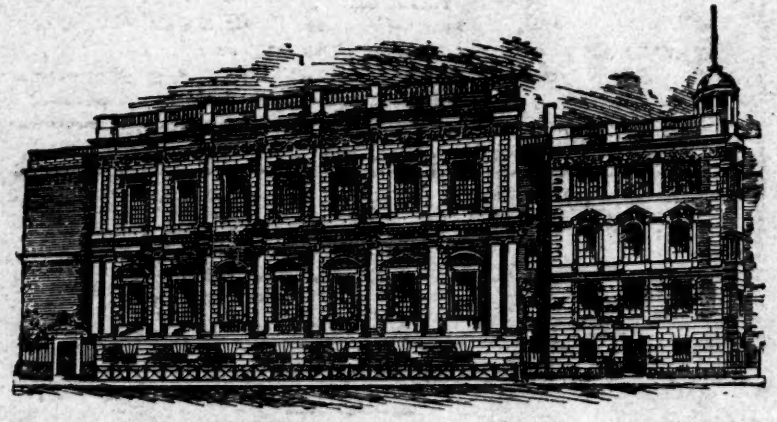

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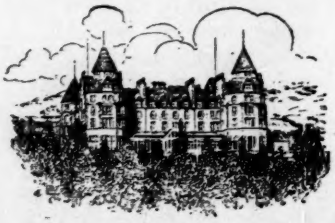

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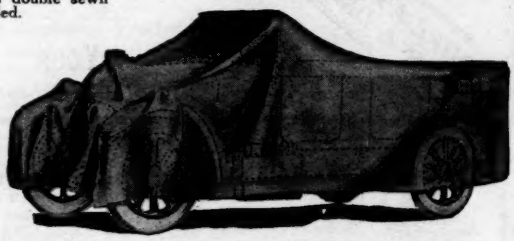

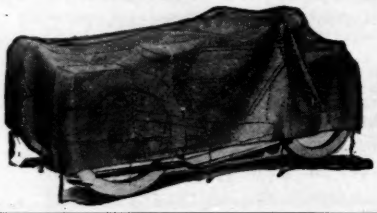

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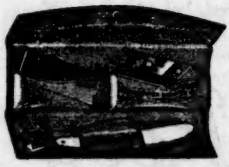

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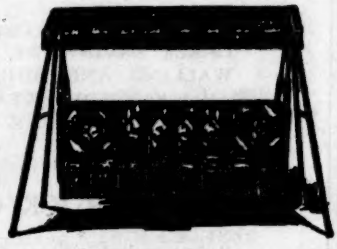

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FORM OF BEQUEST.

I Bequeath to THE ROYAL UNITED SERVICE INSTITUTION the sum of £ _____ (free of duty),

or (in case of a specific legacy) my _____ (free of duty),

to be applicable for the general purposes of such Institution.

And I Declare that the receipt of the Secretary, or other proper officer for the time being of such Institution, shall be a sufficient discharge for the same.

SECRETARY'S NOTES.

AUGUST, 1925.

I.—Council.

The Council deeply regret to have to record the death of Admiral-of-the-Fleet Sir F. C. D. Sturdee, Bart., G.C.B., K.C.M.G., C.V.O., who had served on the Council since 1895 (with brief intervals of Sea service); he was its Chairman in 1919–20, and took a very active part in the affairs of the Royal United Service Institution.

Vice-Admiral Sir George P. W. Hope, K.C.B., K.C.M.G. (President of the R.N. College, Greenwich), has been elected to fill the vacancy under chapter IV., para. 9, of the Bye-Laws.

Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O., has been elected an Air Force Member of the Council, under Chapter IV., Para. 9, of the Bye-Laws.

II.—Staff of the Institution.

The Council have further extended the appointment of Lieut.-Colonel Sir Arthur Leetham, K.C.V.O., C.M.G., F.S.A., as Secretary, Curator, and Chief Executive Officer for two years from March, 1926.

III.—Officers Joined.

The following Officers joined the Institution during the months of May, June and July, viz.:—

Flight-Lieutenant H. N. Hampton, D.F.C., R.A.F.
Captain R. L. Shaw, I.A.
Lieutenant F. L. Johnston, Royal Scots.
Lieutenant K. F. McK. Lewis, M.C., R.A.
Captain C. H. Morgan, South Wales Borderers.
Lieutenant L. C. East, Queen's Royal Regiment.
Lieutenant C. A. Jenkins, R.N.
Captain H. C. James, I.A.
Lieut.-Colonel W. D. Nichol, late R.G.A.
Lieutenant H. E. Cowie, Dorsetshire Regiment.
Lieutenant J. C. Garnett, Rifle Brigade.
Lieutenant H. M. O'Donnell, R.E.
Squadron-Leader E. A. Beaulah, R.A.F.
Sub-Lieutenant G. B. H. Fawkes, R.N.
Captain G. B. Harvey, I.A.
Air Vice-Marshal Sir V. Vyvyan, K.C.B., D.S.O.
Lieutenant E. G. Audland, M.C., R.A.
Lieut.-Commander J. M. Heath, R.N.
Lieutenant F. A. A. Blake, R.A.
Lieutenant A. H. B. Day, R.N.
Lieutenant T. A. N. Bent, R.E.
Lieutenant A. T. T. Card, King's Own Royal Regiment.
Lieutenant W. J. Fennell, R.A.
Captain S. Greeves, M.C., I.A.
Lieutenant N. MacLeod. R.A.
Squadron-Leader H. K. Thorold, D.S.C., D.F.C., A.F.C., R.A.F.

Lieutenant P. R. H. Fox, M.C., The Buffs.
Lieutenant D. Gilmour, R.N.
Captain D. H. Haugh, M.C., Seaforth Highlanders.
Vice-Admiral R. A. Hopwood, C.B.
Captain R. H. Neale, Royal Corps of Signals.
Lieutenant F. S. Siggers, M.C., R.H.A.
Captain J. H. E. de Robeck, M.B.E., R.A.
Lieutenant H. L. Ellis, late Sherwood Foresters.
Captain V. D. Thomas, Royal Marines.
Lieutenant W. H. Kingsberry, M.B.E., Loyal Regiment.
Captain J. B. Bettington, M.C., King's Shropshire Light Infantry.
Captain R. F. Worthington, I.A.
Captain R. W. M. Webster, The Buffs.
Captain C. W. Beart, M.C., Durham Light Infantry.
Major S. van B. Laing, D.S.O., M.C., I.A.
Lieutenant A. G. L. Maclean, Queen's Own Cameron Highlanders.
Lieutenant F. K. W. Rodger, Royal Scots.
Lieutenant K. L. M. Cooper, Royal Marines.
Captain W. B. Badcock, M.B.E., I.A.
Captain A. G. Fuller, I.A.
Captain The Lord Russell, M.C., King's Regiment.
Captain J. W. Wilson, I.A.
Major J. F. H. Nugent, D.S.O., I.A.
Lieut.-Colonel R. W. Cox, O.B.E., T.D., 9th Bn. London Regiment (T.A.).
Major-General Sir E. D. Swinton, K.B.E., C.B., D.S.O., late R.E.
Major F. L. S. Clarke, late Suffolk Regiment.
Captain B. K. Young, M.C., R.E.
Captain S. W. Bower, I.A.
Captain R. C. G. Foster, M.C., Queen's Royal Regiment.
Captain G. K. Olliver, M.C., Queen's Royal Regiment.
Second-Lieutenant I. F. Low, King's Own Yorkshire Light Infantry.
Captain R. N. Nunn, M.C., I.A.
Captain D. Powell, I.A.
Captain A. E. H. Miller, M.C., late 7th Bn. Highland Light Infantry (T.A.).
Lieutenant W. E. Walters-Symons, M.C., R.A.
Second-Lieutenant G. S. Grimston, Queen's Royal Regiment.
Sub-Lieutenant R. J. H. Ryan, R.N.
Sub-Lieutenant A. Crawfurd, R.N.
Captain J. H. Dumbrell, Royal Sussex Regiment.
Captain T. M. Layng, M.B.E., M.C., I.A.
Lieutenant V. F. Browne, M.C., R.A.
Lieutenant R. L. Telfer, Essex Regiment.
Captain N. A. Willis, Queen's Royal Regiment.

IV.—Lectures.

The Lecture Card for the Session 1925–26 is approaching completion, and will be issued to Members towards the end of September.

V. Gold Medal Essay (Naval) 1925.

The following essay has been received :—

(1) "Sapere, Aude, Incipe."

VI. Admission to Lectures.

Members are reminded that they are able to introduce two visitors to each Lecture. When a Member does not attend himself, it is necessary that such visitors should hand in his visiting card at the entrance.

VII. The Museum.

The amount taken for admission to the Museum during the past quarter was :—

£63 3s. 6d. in May.
£82 1s. 0d. in June.
£105 5s. 0d. in July.

ADDITIONS.

(7878) Pair of Field Glasses, formerly the property of Miss Florence Nightingale. The glasses are inscribed "Miss Nightingale Vectis Oct. 1854" and "Sevastopol Dec. 12, 15, 14, 1854." Given by A. L. Clarke, Esq.

(7879) A varnished Oak "Tuck Stick" with sword blade inside it; these were formerly issued by the Customs Office to the Coast Guards (this specimen came from the Coast Guard Station, Hayling Bridge, Hants); they were used for defence by the men on patrol duty, also for searching through bales of hay, etc. It probably dates from about 1850, as shortly after this date the Coast Guards came under the Admiralty; but a similar weapon remained in use up to 1923, when the force reverted to being a Civil one under the Board of Trade.—Given by R. Lionel Foster, Esq.

(7880) Pair of Colours of the West African Regiment which were issued to that Corps in 1898 (the year in which they were raised by the late Major-General Sir E. P. Woodgate, K.C.B.), and carried until 31st May, 1924, when they were replaced by new ones. These Colours record the Battle Honours "Sierra Leone, 1898–9," and "Ashanti, 1900," obtained by the Regiment during their term of service.—Given by the Officer Commanding, the West African Regiment.

(7881) Original letter written by General von Ludendorff, referring to the death of Field-Marshal Earl Kitchener.—Given by Victor Wallace Germains, Esq. (Author of "The Truth about Kitchener").

(7882) A Stipple Engraving of the Marquis Cornwallis, painted by I. S. Copley, R.A., and engraved by Benjamin Smith, published in 1798.—Purchased.

(7883) A Line Engraving of the 1st Duke of Marlborough, from the painting by A. V. Werff and engraved by P. V. Gunst.—Purchased.

(7884) A curved Indian Tulwar of fine steel, and a richly embossed Shield, which were taken in action during the Indian Mutiny by Lieutenant and Adjutant J. C. Baillie, 7th Punjab Infantry, on the advance to Lucknow in November, 1858.—Given by General J. C. Baillie, late I.A.

(7885) Model of a Field Gun, dated 1820, which was sent as a pattern to India. It formerly belonged to the late Major-General Renny, Director-General of Ordnance in India.—Given by Mrs. Renny.

(7886) An Officer's Scarlet Coattee of the Warwickshire Dragoons Yeomanry. The Regiment, as Light Dragoons, was clothed in Light Blue until 1833; in this year it became a Dragoon Regiment, and was dressed in scarlet, which is about the date of the Coattee.—Given by B. A. Fetherton-Dilk, Esq.

(7887) A Naval Powder-horn used for the priming of muzzle-loading guns; its date is about 1800.—Given by R. Lionel Foster, Esq.

(7888) A Cap-badge of the South African Light Horse (raised in 1899), presented to H.R.H. the Prince of Wales during his tour in the Union of South Africa by the donor.—Given by Mr. J. W. Hodgkin (late No. 585, S.A.L.H.).

(7889) A silk White Ensign which was flown by Captain H.R.H. The Duke of Edinburgh, K.G., K.T., G.C.S.I., G.C.M.G., when commanding H.M.S. "Galatea" on Special Service in New Zealand Waters in 1869.—Given by Colonel Chalmers.

(7890) The Regimental Colours of the 1st and 2nd Battalions of the 11th Portuguese Regiment formerly belonging to the late Colonel Sir Alexander Anderson (42nd Highlanders), who served with the 11th Regiment throughout the Peninsula War and was appointed Colonel of that Corps in 1816. The Colours were carried at Busaco, Campo Mayor, Siege of Badajoz, Albuhera, Siege of Ciudad Rodrigo, Salamanca, Vittoria, the battles of the Pyrenees, Orthez and Toulouse, besides a number of minor engagements. The 11th Portuguese Infantry were in the 4th Division under General Sir Lowry Cole.—Given by Mrs. Grant of Kerrow, the grand-niece of Sir Alexander Anderson.

(7891) A bell-mouthed flint-lock pistol which was taken at Ramnugger (1849) by Major J. W. Yerbury, 3rd K.O. Light Dragoons.—Given by Colonel J. W. Yerbury, late R.A.

(7892) A pair of silver mounted (gilt) flint-lock pistols taken at the battle of Chillianwallah (1849) by Major J. W. Yerbury, 3rd K.O. Light Dragoons.—Given by Colonel J. W. Yerbury, late R.A.

(7893) The green silk Camp Colour which was found by Sir John Rogers (then serving in the R.A.M.C.) flying in front of the tent which had been occupied by Arabi Pasha at Tel-el-Kebir, when those entrenchments were stormed by the British on September 3rd, 1882, under General Lord Wolseley.—Given by Lady Rogers.

RECIPIENTS OF THE ROYAL UNITED SERVICE INSTITUTION GOLD MEDAL.

(With rank of Officers at the date of the Essay.)

1874. Captain H. W. L. Hime, R.A.
1875. Commander G. H. U. Noel, R.N.
1876. Lieutenant J. F. G. Ross of Bladensburg, Coldstream Guards.
1877. No Medal awarded.
1878. Major T. Fraser, R.E.
Captain E. Clayton, R.A.
1879. Captain The Hon. E. R. Fremantle, C.B., C.M.G., A.D.C., R.N.
1880. Captain J. K. Trotter, R.A.
1881. Captain L. Brine, R.N.
1882. No Medal awarded.
1883. Captain C. Johnstone, R.N.
1884. Captain G. T. Browne, Northamptonshire Regiment.
1885. Lieutenant F. C. D. Sturdee, R.N.
1886. Captain C. E. Callwell, R.A.
1887. No Medal awarded.
1888. Captain J. F. Daniell, R.M.L.I.
1889. Captain H. F. Cleveland, R.N.
1890. Captain G. E. Benson, R.A.
1891. Captain R. W. Craigie, R.N.
1892. Lieut.-Colonel J. Farquharson, C.B., R.E.
1893. Commander F. C. D. Sturdee, R.N.
1894. Major F. B. Elmslie, R.A.
1895. Commander J. Honner, R.N.
1896. Captain G. F. Ellison, Queen's Royal West Surrey Regiment.
1897. Commander G. A. Ballard, R.N.
1898. Captain W. B. Brown, R.E.
1899. Commander G. A. Ballard, R.N.
1900. No Medal awarded.
1901. Lieutenant L. H. Hordern, R.N.
1902. Major A. H. Terry, A.S.C.
1903. Lieutenant A. C. Dewar, R.N.
1904. Lieut.-Colonel C. E. D. Telfer-Smollett, 3rd Bn. South Staffordshire Regiment.
1905. Major W. C. Bridge, South Staffordshire Regiment, p.s.c.
1906. Lieutenant B. E. Domvile, R.N.
1907. Lieut.-Colonel A. F. Mockler-Ferryman, Reserve of Officers
1908. Major A. B. N. Churchill, R.G.A.
1909. No Medal awarded.
1910. Captain P. W. Game, R.H.A.
1911. Captain H. T. Russell, late R.G.A
1912. Commander K. G. B. Dewar, R.N.
1913. Major A. Lawson, 2nd Drags.
1914–15–16–17. No Medals awarded.
1918. Lieutenant W. S. R. King-Hall, R.N.
1919. Colonel J. F. C. Fuller, D.S.O., Oxford & Bucks L.I.
1920. No Medal awarded.
1921. Flight-Lieutenant C. J. Mackay, M.C., D.F.C., R.A.F.
1922. Major R. Chenevix - Trench, O.B.E., M.C., Royal Corps of Signals.
1923. Captain A. H. Norman, C.M.G., R.N.
1924 Major L. I. Cowper, O.B.E., King's Own Royal Regiment.

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(With rank of Officers at the time of the Award.)

1900. Captain A. T. Mahan, United States Navy.
1907. Major-General Sir J. F. Maurice, K.C.B., p.s.c.
1909. Hon. J. W. Fortescue, M.V.O.
1910. Sir J. K. Laughton, Knt., M.A.
1911. Professor C. W. C. Oman, M.A., F.S.A.
1913. Colonel Sir L. A. Hale.
1914. Sir Julian S. Corbett, LL.M., F.S.A.
1919. Major-General E. D. Swinton, C.B., D.S.O.
1921. Major-General Sir C. E. Callwell, K.C.B.
1924. Professor G. A. R. Callender, M.A., F.S.A.
1925. Captain Sir George Arthur, Bart., M.V.O.

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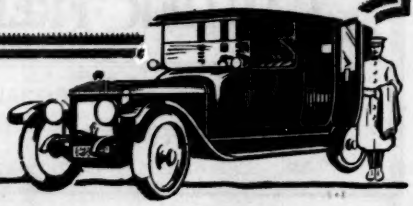

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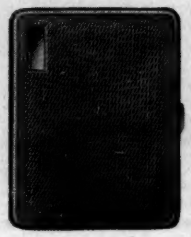

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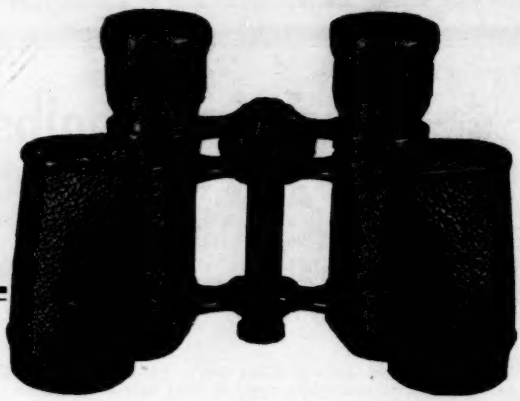

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UNITED STATES ARMY AND NAVY GRAND COMBINED MANŒUVRES.

(Compiled from American sources.)

ACCORDING to the U.S. Journal, *Army and Navy Register*, Major-General John L. Hines, one of the chief umpires at the recent Hawaiian "grand joint exercise," has authorised the following statement of the plan and results of the manœuvres:—

THE OBJECT.—The grand joint exercise just concluded in Hawaii was the biggest and most interesting one ever held by our Army and Navy. It had two principal objects:—

(1) To test the project and plans for the defence of Oahu; and
(2) To train Army and Navy in joint operations.

SCHEME OF THE MANŒUVRES.—The problem for the exercise was drawn up by the Joint Board and was extremely simple in form, although its solution was difficult for both sides. The following facts were assumed:—

(1) That a state of war existed between Blue (the United States) and Black;
(2) That the Hawaiian Islands were a Black possession and were defended by the existing armament, the present naval district forces and a garrison of approximately 14,000 men; and

(3) That Blue was desirous of capturing Oahu with the object of making use of it as a naval base.

The Blue fleet, accompanied by an expeditionary force of two divisions of troops, was concentrated in San Francisco and put to sea on the 15th April. Under the terms of the problem, the transports accompanying the fleet were not to be farther than 1,700 miles from San Francisco at 5 a.m., on the 25th April, the hour and date when the problem actually opened. The Black or Hawaiian side was restricted to the use of forces and means actually available, whereas the Blue fleet had two constructive (*i.e.*, skeleton) divisions of troops, represented by some 1,500 marines.

BLACK (DEFENDER'S) PROBLEM.—Black knew of the impending attack in ample time, and estimated that Blue would seize a base on Lanai, one of the islands of the group, preparatory to launching an attack against Oahu itself.

Black was in a difficult situation. No reinforcements could be expected, and neither air forces, sub-surface nor fast surface vessels were available in sufficient strength to permit Black to deny any of the outlying islands to Blue.

The arrangements made for defence were, in general, admirable and were efficiently carried out, the conduct of practically all forces engaged being exemplary. Everyone was on the *qui vive*. Possible landing places were held by a thin beach cordon, plentifully supplied with field guns, machine guns, etc., and backed by strong points and small mobile reserves.

The Black air forces, both army and navy, were concentrated on Oahu, seven D.H. 4Bs being, however, despatched to the island of Lanai. The surface and sub-surface vessels and aircraft of the naval district formed an observation cordon around Oahu at a sufficient distance to give timely warning of the enemy's approach.

BLUE (ATTACKER'S) TASK.—Blue's task was also difficult in that it involved an attack against a strongly fortified island some two thousand miles from Blue's nearest home base. In the very nature of the case, such an attack was a major operation and therefore required extensive and careful preparations. Since a direct attack against Oahu was too hazardous, Blue planned to seize one of the outlying islands, Molokai, and to establish an air base there; then to follow this with a naval demonstration against a bay on the south coast of Oahu for the purpose of diverting Black's attention. Blue then proposed to direct his main landing attack against the north coast of Oahu, while simultaneously therewith making a secondary landing on the west coast of Oahu.

THE COURSE OF THE OPERATIONS.—Blue made his dispositions accordingly. Blue was successful not only in seizing Molokai, but Lanai as well, and in occupying the landing fields on both islands early on the 25th. This success may be ascribed in large measure to the fact

that, instead of moving the airplane-carrier "Langley" close inshore and exposing her to attack by Black submarines, Blue kept her well offshore and had her fly her planes off to the landing fields on Molokai and Lanai as soon as these had been seized by the advance force. The seven Black airplanes despatched to Lanai gave a good account of themselves, sinking a Blue tender and inflicting serious damage on the Blue landing force. They were far too weak to prevent the seizure of the two islands.

Black anticipated that the main hostile attack would be launched against the west coast. With the forces at his disposal, it was physically impossible for the Black commander to have adequate local reserves on both west and north coasts, and to hold out general reserves.

Confronting two attacks, one on the west coast and one on the north, he felt compelled to estimate one as the main attack and the other as secondary. The immediate consequences of a successful attack on the west coast were more serious than on the north coast. Therefore, Black placed the bulk of his forces so as to meet this attack. With adequate general reserves to meet any action of Blue, this risk would not have had to be taken. As it turned out, the bulk of the Black forces were too far from the north coast of Oahu to repulse the major debarkation promptly.

Blue had been successful in seizing a base in dangerous proximity to Oahu. With local command of the sea and with a superior air force in his hands, Blue was reasonably sure of ultimate victory. But Black aircraft and submarines did all in their power to make winning as hard and costly as possible to Blue.

Blue's first move against Oahu consisted of a naval demonstration on the evening of April 26. This was designed as a feint, but did not have any practical result, for it did not deceive Black for a moment and merely served to bring Blue ships under the fire of heavy Black batteries. Blue then launched his main attack against the north (or open) coast of Oahu at daylight on the 27th, landing troops under cover of and supported by heavy fire from his ships. The weather was ideal and there was practically no surf. The landing was vigorously opposed, but the defence forces finally had to retire.

Simultaneously with this main attack, Blue made a secondary landing on the west coast under cover of and supported by heavy fire from his ships. Here considerable surf was encountered, and the landing failed in face of the vigorous defence. It is to be noted that both landings were planned to begin at 1.30 a.m., 27th April, but orders were issued that they were actually to begin four hours later, so as to obviate the inevitable hazards of life and material involved in making landings at night.

LANDING ARRANGEMENTS.—Since the bulk of the landing forces was constructive (skeleton), the arrangements for the landings were extremely complicated, but apparently worked without a hitch. Each boat carrying a large signal flag in the bow as it approached the shore

represented a tow of boats. The character of the troops actually or constructively carried by boats was indicated by these flags.

A beachmaster (naval officer) and beach detachment were designated for each beach. Beach parties were debarked with the first waves, but not in leading boats thereof.

The aircraft with the expeditionary force were to furnish illumination (flares) for beach bombardment and smoke screens to cover first landings; to reconnoitre hostile gun positions and troop movements; to spot for covering and supporting gunfire.

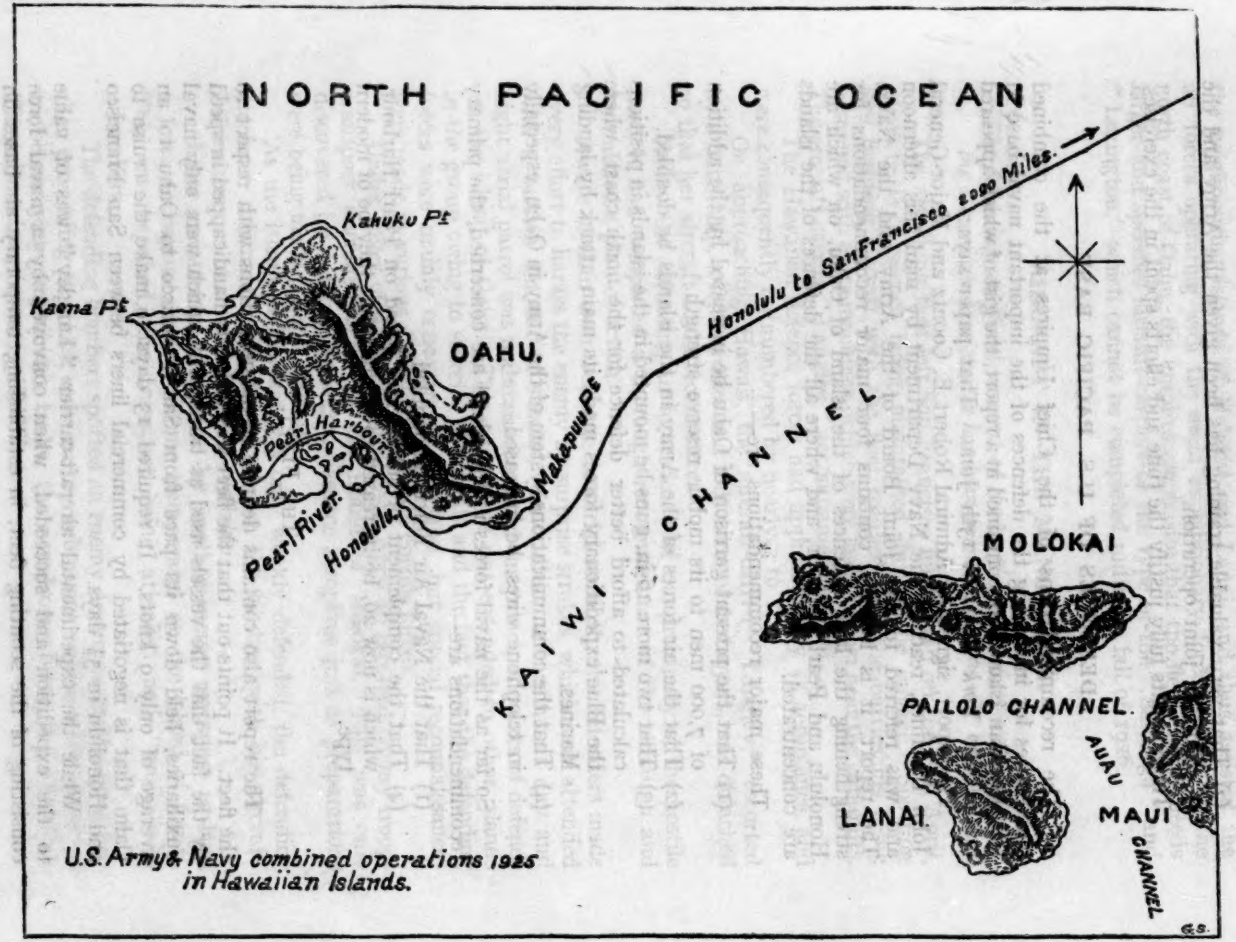
Careful provision was made for marking the extent of each beach and the approaches thereto. A schedule for unloading each transport, showing tows, etc., was prepared on each transport and a schedule of the trips of each tow was prepared by the senior officer of each tow and furnished each boat officer. Each beachmaster likewise prepared a schedule for the troops and material to be landed at his beach.

LESSONS OF THE EXERCISES.—It is, of course, extremely difficult to say whether either landing would have succeeded in an actual case. The local umpires on the spot were of the opinion that the landing on the north coast succeeded, Blue suffering severe losses, and that the landing on the west coast failed. Considering the two cases on their merits, I am of the opinion that the landing on the west coast would probably have failed in war, but that the landing on the north coast might well have succeeded. There is no doubt that highly-trained, well-led infantry can establish a beach-head once the troops are ashore. Even when the landings, as in the exercise, are well planned and covered by naval gunfire, the guns defending the beach will sink many boats, perhaps even transports. Even under the best weather conditions, the critical period of a landing operation is that in which the landing troops are moving in boats from transports to beach. During this period they are exposed helpless to the gun, machine-gun and rifle fire of the defender, and, in case he has any aircraft left, to attacks by the latter.

But these landing operations demonstrate another lesson. The defence against them must be flexible and mobile. Dependence must not be placed primarily or even predominantly upon mechanical means —field guns and machine guns—but upon mobile troops and aircraft, counter-attacking whenever and wherever necessary. A commander must not only have troops enough to hold the essential positions and to man his armament, but he must have enough troops left to form an adequate reserve. In this instance, the commander could not do this, for his force was not adequate for the task assigned to it. He did all he could with the forces given him; he could not do the impossible.

Analysing the results of the exercises from the standpoint of their objects, it is believed:—

(1) That the project and plans for the defences of Oahu have been tested and that the deficiencies therein have been disclosed.



U.S. Army & Navy combined operations 1925 in Hawaiian Islands.

(2) That very valuable training has been given the Army and the Navy in joint operation.

These results fully justify the time and efforts spent in the exercises.

DEFENCES OF U.S. PACIFIC BASE.

The recommendations of the Chief Umpires at the combined manœuvres for improving the defences of the important naval base in the Hawaiian Islands are contained in a report, the gist of which appeared in the *New York Times* of 13th June. That paper says:—

The report, signed by Admiral Robert E. Coontz and Major-General John L. Hines, reached the Navy Department by mail this afternoon and was referred to the Joint Board of the Army and the Navy. The report, it is learned, contains four major recommendations for strengthening the land defences of the island of Oahu, on which are Honolulu and Pearl Harbour, and where all the defences of the islands are concentrated.

These major recommendations are—

(1) That the present garrison of Oahu be increased by the addition of 7,000 men to its mobile reserve strength.
(2) That the air forces of the Army in the islands be doubled.
(3) That two more 16-in. guns be mounted in the islands in positions calculated to afford better defence for the north coast, where the Blue expeditionary forces made its main attack by landing Marines.
(4) That the communications system of the Army in Oahu, especially in telephone wires, be increased.

So far as the naval forces in the island are concerned, the primary recommendations are—

(1) That the Naval Air Force be doubled.
(2) That the complement of submarines based on Pearl Harbour, which is now 20, be increased to 30, and that they be of modern type.

The Fleet.

The report also contains definite recommendations with respect to the fleet. It points out that the fleet was seriously handicapped in speed by the fact that the vessels used as transports, which were only naval auxiliaries, held down its pace from San Francisco to Oahu to an average of only 9 knots. It required 13 days to make the cruise to Oahu that is negotiated by commercial liners between San Francisco and Honolulu in 5½ days.

While the experimental aircraft-carrier "Langley" was of value to the expedition and succeeded, when convoyed by a naval force consisting of the scouting fleet, in establishing temporary air bases on

the neighbouring islands of Molokai and Lanai, and thus assisted the air forces operating with the main expeditionary force landing on the north coast of Oahu, the umpires emphasise that the fleet greatly needs larger and speedier aircraft-carriers of the type of the "Saratoga" and "Lexington," which cannot be completed until the fall of 1926.

AIRCRAFT IN THE MANŒUVRES.

(The following unofficial account of the employment of aircraft during the Hawaiian Manœuvres has been furnished by the Air Staff.)

The attacking fleet left San Francisco for Hawaii on the 15th April, absolute W/T silence being maintained during the voyage. Spotting and flighting aircraft with the fleet totalled 119, the battleships being equipped with extra machines, which were lashed down near the catapults. The aircraft-carrier "Langley" accompanied the fleet.

The Hawaiian defence forces had approximately 45 aeroplanes, and were consequently outnumbered by nearly 3 to 1.

On approaching Hawaii, the aircraft-carrier "Langley," escorted by a battleship, a light cruiser and a division of destroyers, was detached so that her aircraft could reconnoitre.

Before the defending air forces knew of the proximity of the hostile fleet, it had completed a thorough reconnaissance of the situation and formulated a plan of action.

Aware of their own weakness in aerial strength, the defenders made every effort to harass the enemy by surprise strokes, which were attended with a certain amount of success. In addition a continuous day and night aerial patrol was maintained around the principal points of defence on the island of Oahu. This patrol was not extended to other islands in the group owing to scarcity of aircraft and the fact that the defending forces were mainly concentrated on Oahu, but special reconnaissances were made in various directions to locate enemy forces.

Under cover of darkness on 24/25th April an escorted enemy troop-transport anchored close to the island of Molokai. This was only discovered by a defending reconnaissance aeroplane just as preparations were being made to land Marines.

As the island of Molokai was only weakly defended, the defending air force commander decided to oppose the landing with his aircraft. Information as to the result is not available.

Later an attempt was made by another enemy transport to land a force to capture the aerodrome (temporary) on the island of Lanai. This was repulsed, the transport being attacked and "sunk" by 4 bombers.

The defending bombers spotted an enemy destroyer and bombed her, then proceeding to attack some enemy submarines which were suspected to be carrying amphibious tanks, the aerodrome being the objective. The submarines "were repelled."

At this juncture the enemy carrier "Langley" sent off her fighters in rapid succession, which gave chase to the marauding bombers, driving them off and "destroying" one.

On the 27th April the defending aircraft made a surprise attack on the "Langley" in an effort to destroy her and reduce the air strength of the enemy fleet. A brisk aerial encounter ensued, in which the enemy's superior numbers in aircraft told, the attack being repulsed after heavy "losses" had been suffered by both sides.

At the conclusion of the manœuvres it was decided that the Hawaiian islands fell owing chiefly to the superiority in numbers of the hostile air forces.

As a result it is recommended that the Hawaiian aerial forces be augmented.

Among other recommendations are the following :—

That more fleet aircraft and a third carrier be provided (*i.e.*, in addition to the two now under construction).

That immediate additions be made to the deck armour of capital ships, and blisters be fitted to counteract the effect of aerial bombs.

It is stated that it was fortunate that the weather conditions were favourable, otherwise the "Langley" would have been unable to operate her aircraft.

The principle of defence suggested is that the gun in the forts should hold an enemy fleet at a distance while aircraft go out and bomb it.

THE TAKING OF TOBAGO, 1793.[1]

By Major F. G. Cardew, O.B.E.

THE inefficiency of the French Navy during the closing years of the Monarchy was intensified by the confusion of the Revolution. Accordingly, the valuable possessions of France in both East and West Indies were left an easy prey to a strong sea power. Moreover, the internal affairs of her West Indian colonies invited attack. In 1789 the declaration of extreme democratic principles in communities where a numerous coloured population was held in subjection by the repressive laws of a comparatively small number of Europeans had naturally been productive of efforts on the part of the subject race to throw off that yoke. These efforts were inevitably answered by the white rulers with measures yet more harsh and intolerant. Thus it happened that, even prior to the outbreak of hostilities between Britain and France in 1793, several of the French West Indian islands were distracted by the terrors of racial warfare. In more than one case the white colonists, not strong enough to ensure their own safety, had actually invited the authorities of neighbouring British possessions to undertake that control which they despaired of seeing enforced by their own Government. The unrest prevailing in the French possessions had, in fact, necessitated the augmentation of the British garrisons in the West Indies, so that, when war broke out, as many as nineteen British infantry battalions were either in or on the way to those colonies.

Only three days after the declaration of war instructions were despatched to Barbadoes for the capture of the Island of Tobago. This enterprise was to be followed by the occupation of Martinique, Guadaloupe, St. Lucia and Mariegalante. But, whereas it was believed that in the latter places the goodwill of the French colonists would enable the undertaking to be accomplished without much resistance, it was known that Tobago, formerly a British colony, was held in some strength and would certainly not be surrendered so easily.

Major-General C. Cuyler, the British commander at Barbadoes, in March, 1793, received instructions from England to attack Tobago, and he only delayed compliance until the arrival from St. Kitts of Vice-Admiral Sir John Laforey with sufficient naval force for the expedition. Although the defence of Fort République—afterwards Fort St. George—adjoining Scarborough, the capital of Tobago, had been anticipated, neither the quality of the French garrison nor the strength of the works were considered to be of much account. Such

[1] This narrative is derived from papers preserved in the family of Major William Gordon, of the 60th Regiment of Foot.

contempt for an adversary's strength resulted in the embarkation of only some 450 officers and men for the undertaking in view. This small detachment was under the personal command of Major-General Cuyler and included nine staff officers, fifty artillerymen with two brass 6-pounders and two howitzers, nine companies of the 4th battalion 60th Regiment, which numbered less than 250 of all ranks, and the two flank companies of the 9th Regiment, of a strength about 100. The latter were brought from St. Kitts in the Vice-Admiral's flagship. The detachment was embarked on 11th April, on board H.M.S. "Trusty" (50 guns), "Nautilus" (18 guns), and "Hind;" also in the merchant ship "Hero," offered for the purpose by her skipper, Captain Spencer. On 12th April the expedition set sail, and at 1 p.m. on the 14th it arrived without mishap in Great Courland Bay, Tobago. Here the force disembarked and by 3 p.m. was safely on shore with guns, stores, and baggage. Major-General Cuyler then marched across the island to Mount Grace, a distance of four miles, whence he sent a messenger to the Governor, Monsieur Montel, at Scarborough, two miles farther on, summoning him to surrender. The defiant refusal now returned was not unexpected. At the same time a reconnaissance from Mount Grace and the report of the messenger to the fort revealed the fact that the numbers and defences of the enemy were not so contemptible as had been believed. In view of the fact that his force was unequal to the task of a regular siege, General Cuyler wisely determined to strike a decisive blow and issued orders to storm the fort that night.

For this purpose the light companies of the 9th and 60th Regiments were detailed as a "forlorn hope" to lead the assaulting column, with the grenadier companies of the two battalions in immediate support. The main body consisted of the remaining seven companies of the 60th and a party of 30 Marines whose services had been lent by the Admiral. The senior officer with the 60th was Major William Gordon, who asked and was granted permission to hand over the command of the bulk of his regiment to Captain De Visme in order that he might himself lead the storming party.

At 1 a.m. the light companies set forth on their march of two and a half miles by a rough and narrow road through thick brushwood. The night was intensely dark and slow progress was made, the men frequently having to move in single file owing to the difficulties of the track. Arriving at the outskirts of Scarborough, the leading files were fired upon by the town guard, but rushed forward with fixed bayonets and silenced the opposition. These shots, nevertheless, seem to have alarmed the garrison of the fort on the far side of the town, though, owing to the darkness and the immediate cessation of the firing, it was impossible for the enemy to know whether or not an attack was impending. Having disposed of the guard, Major Gordon with his light infantry pressed on through the town until they suddenly came on an outlying French piquet. This was overpowered and bayoneted without further alarm being given. Here the guide said that the head of the

column was only two hundred yards from the walls of the fort. A halt was, accordingly, ordered for the rear to close up preparatory to the assault being delivered. What was the leader's dismay on receiving information that not only were the rear sections of his small storming party missing, but that nothing could be heard of the supports or of the rest of the column! Owing to the darkness and the difficulties of the path some of the light infantry had lost touch with their comrades, while—as was afterwards discovered—the treachery or cowardice of a negro guide had caused the whole of the remaining troops to go astray, so that they eventually reached the fort on the wrong side, where the defences were strongest. Here they delivered an attack with the greatest gallantry, but were unable to gain a footing in the fort. They were thus obliged to fall back with loss, Major-General Cuyler himself being wounded.

Meanwhile the position in which Major Gordon and his party found themselves was hazardous in the extreme. Immediately before them were the enemy's works of unknown strength; behind them was the town and the difficult country over which they had come; there seemed no prospect of support until the arrival of daylight should have destroyed all hope of a successful assault. In this dilemma Major Gordon determined to wait quietly where he was for a time in order to give the missing men of his own party an opportunity of rejoining. Whilst he waited, the noise of footsteps was heard approaching from the town. "The Major," says a contemporary account, "went back with four men to the spot where the French piquet had been, thinking that he might surprise the patrol if an enemy, and, if friends, should know them by their watch-word. He challenged in French and was answered, '*Ami.*'—'*Quel ami?*'—'*Citoyen.*' The word was no sooner out of the sergeant's mouth than he and four men that were with him were dead, without the smallest noise. Having by this bold ruse both avoided discovery and made himself acquainted with the enemy's pass-word, Major Gordon returned to the rest of his party. Scarcely had he done so when another visiting trench patrol was heard coming from the Fort. Hoping that in the darkness they might again pass for the piquet which they had surprised, the British awaited the approach of the patrol in perfect silence until it was only a few paces distant. Then the French challenge rang out '*Qui va là?*'—'*Ami,*' replied Major Gordon.—'*Quel ami?*'—'*Citoyen,*'—and on this the patrol, satisfied that all was well, replied '*A la bonheur,*' and returned back into the fort."

This second danger having been averted, Major Gordon was soon to be rewarded for his patience by the arrival of the missing sections of the storming party. There was still, however, no sign of the rest of the column. But it was now three o'clock and there was urgent need to decide whether to abandon the enterprise or to attempt to carry the fort with only the small detachment of stormers. Gordon did not hesitate to choose the latter alternative. The order was given

to advance, and after a rapid scramble over the intervening 200 yards the party rushed the nearest outlying redoubt without firing a shot and almost without opposition. So complete was the surprise occasioned by this sudden onset that, still without firing and before the enemy could check them, the British dropped into the ditch of the fort, whence, according to reports that had been brought to General Cuyler, the ramparts could be scaled with comparative ease. So far, however, from this being the case, the wall above the ditch was found to be both high and precipitous. The men were already somewhat exhausted with their climb and were unequal for the moment to further exertion. Moreover the garrison was now alert and firing became general along the ramparts. But the stormers were still protected by the darkness and were able to halt for a few minutes in comparative safety in the ditch. Then the word was passed along for another rush, and with a shout of "God save the King! Follow me!" Major Gordon led the way up the wall. The men answered with a cheer and dashed at the rampart. One corporal was up almost as quickly as his leader. These two helped up those who followed, dragging them up by their muskets, until, despite several casualties, a score or so were lying down on the slope of the parapet, almost under the muzzles of the enemy's guns, which continued to fire over them into the darkness. A moment again to take breath and with another cheer the stormers dropped into the battery, bayoneted the gunners and opened fire on the French infantry who were turning out of their barracks in great confusion. The wild firing of the latter did little damage to the assailants, and in a few minutes the whole of the storming party had reached the battery. Having got his men together the gallant leader caused them to cease fire, and, calling to them to charge, rushed across the fort square at their head. This decided the issue. The suddenness of the attack, the dash and energy with which it was carried through, had completely cowed the garrison, and the charge of the British had hardly been delivered before—in the words of the narrative already quoted—

> "Mons. Montel, the Governor of the island, called for quarter and delivered up his sword. The strength of the garrison included seventy regular soldiers, a hundred sailors, and a strong body of local coloured troops, called National Guards. The number of the storming party cannot have exceeded seventy or eighty. It is probable that the attack of the grenadier companies and of the main body, delivered almost simultaneously with that of the light infantry on the opposite side of the fort, served to bewilder and dismay the garrison and to facilitate the success of the storming party; but none the less the successful assault of a fortified place by a mere handful of men, not half the number of the defenders, was a feat of arms which bore eloquent testimony to the spirit of the troops and to the gallantry and determination of their leader."

The satisfaction of the British commander at the success of the assault was fully shared by the colonists. By a vote of the House of Assembly and Council of Tobago, as soon as a British administration was restored in the island, it was decided to present a testimonial to the two officers, General Cuyler and Major Gordon, most prominent in the operations. But Major Gordon, the real hero of the exploit, did not survive to receive this recognition of his gallantry. In June, 1793, he took part with his regiment in the abortive attempt upon Martinique, and there he contracted malarial fever of a virulent type which terminated fatally.

> "Among that unfortunate number (of victims to the climate)" runs a letter from Dominica, dated 13th July, 1793, "I am sorry to say is the gallant and ever to be regretted Major William Gordon, of the 60th Regiment (a son of Abergeldie), who died last Saturday of a putrid fever. . . . . The Garrison which he commanded regret him as their Father, and all ranks of people lament his death; his bravery and heroic Courage at the Capture of Tobago, which was solely owing to him, will signalize his Fame, and render his name illustrious to the latest Posterity."[1]

---

[1] On the 19th February, 1794, the Tobago House of Assembly voted that a piece of plate be presented to the representatives of Major Gordon in recognition of his services in the capture of the island, "on which occasion Major Gordon had so conspicuous a share in gallantly storming Fort République, now Fort St. George."

This piece of plate, a large two-handled cup, is preserved as a heirloom by the Gordons of Abergeldie.

The hero of that exploit was the seventh son of Charles Gordon, Esquire, of Abergeldie. An elder brother was Sir Charles Gordon, K.H., some time British Commissioner with the Elector of Brunswick and later Governor of St. Lucia; another brother, Alexander Sinclair Gordon, was some time Adjutant of the London and Westminster Light Horse Volunteers.

THE CROSSING OF RIVERS IN WARFARE.

By COLONEL D. J. C. K. BERNARD, C.M.G., D.S.O.

On Wednesday, 4th February, 1925, at 3 p.m.

FIELD-MARSHAL SIR W. R. ROBERTSON, Bart., G.C.B., G.C.M.G., K.C.V.O., D.S.O., in the Chair.

THE CHAIRMAN: Ladies and Gentlemen, you have come here to listen to an address by Colonel Bernard on the subject of "Crossing Rivers in Time of War," and I shall not presume to trespass on ground that will no doubt be adequately covered by him. Instead of that, I will at once ask him to proceed.

LECTURE.

I WOULD like to preface my remarks by stating that I have never crossed a river or waterway of any kind as a military operation. This may seem a confession of weakness on the part of one who proposes to offer his views on this subject, but it does at any rate ensure my being able to approach the question quite uninfluenced by any recollection of past experiences, pleasant or unpleasant. Neither do I propose to put forward any revolutionary ideas, nor to suggest any entirely novel way of crossing a river. Probably, in the near or distant future, novel methods of crossing rivers will be evolved; mechanical vehicles or other devices will be produced which will take whole armies across rivers as easily as over dry land, but that has not yet happened. Accordingly I only wish to try to consider the matter as it presents itself to us to-day.

I.—THE IMPORTANCE OF RIVER CROSSINGS IN ALL OPERATIONS.

There is nothing new in the problem of crossing rivers; it is one of the oldest military problems in existence, and has been solved in every conceivable way, although I venture to suggest that it would be hard to improve on the scheme adopted by Joshua when he crossed the Jordan. I think you will agree, therefore, when I say that, in order to consider fully the present day problem, we must bear in mind all such crossings as have taken place in previous wars. But before mentioning those operations, I should like to make it clear that I fully appreciate the danger of drawing false conclusions from past campaigns,

and realize that due allowance must be made both for the fighting capacity of the opposing armies and for the ability of the rival commanders. Much that is of interest and value can, however, be learnt from operations in which the opposing armies—though not necessarily in the very first rank—were still evenly matched. In fact I am not certain that more cannot be learnt from such operations than from those that were conducted by first-class, evenly matched and unexhausted armies like the British, French and German armies at the Battle of the Somme of 1916.

(*a*) *River Crossings in the Great War.*—Considering the magnitude and the duration of the Great War, river crossings did not play so very prominent a part therein except in certain more distant theatres, such as Mesopotamia and Northern Italy, or at the beginning and end of the campaign in France and Flanders. The reason for this state of affairs is not far to seek. About three quarters of the war in the main theatre of operations was static, so that during 1915, '16 and '17 the advance or retirement of the rival armies could be measured in yards rather than in miles. In 1914 and 1918, however, when the war was one of movement, the crossing of rivers and waterways played an important part in the operations.

The crossing of the Marne and the Aisne in September, 1914, may not be altogether ideal examples of river crossings, as in both cases the enemy was in retreat, yet the crossing of the Marne by the 4th Division on 9th September, 1914, is one of the several good examples of dealing rapidly with opposition encountered on the line of a river. In this case our attempt made to cross at La Ferté was held up. Two battalions of the 12th Infantry Brigade were then pushed up and succeeded in driving the Germans from the weir situated to the west of Luzancy. These troops then crossed the Marne by the weir and turned the whole German position at La Ferté. It was rapid action of this kind which enabled the river to be crossed with very slight delay and few casualties before the Germans had been able to organize a better defence.

In 1918, when the whole army advanced on a wide front, a great many of the operations comprised the crossing of canals and rivers which were held by the Germans. These I propose to discuss later and in greater detail.

Whether or not the " next " war will be one mainly of movement is not for me to say, but what is certain is that at some period of it there will surely occur mobile operations, and that it will be the result of these mobile operations which will decide the issue of the campaign. The words of Henderson that " War is first and foremost a question of movement " are as true now as when they were written; that being so, the necessity for being able to cope successfully with some of the main obstacles to rapid movement remains obvious.

(*b*) *Training in River Operations in Peace.*—Rivers are indeed mentioned freely in schemes set during staff rides and operations, as

they are very useful to give as a reason for the advance or retirement of an army. How often in an academic scheme can we see it stated that an army is "ordered to secure the line of a river" or "to seize the passages over a river," but there, as a rule, the matter ends and long before the river is reached the battle has been fought. Probably one of the reasons why so little fighting is done along rivers is that in a densely populated country like England, the ground in river valleys is valuable and consequently never available for military exercises. Moreover, the river itself may be full of trout or stocked with duck, so that the arrival of troops is not greeted with enthusiasm by the riparian owners. Whether this be the reason or not, the fact remains that very few river operations take place in training, with the result that they are discussed rather loosely and expressions are sometimes used which are not thoroughly understood. I would almost venture to say that a great many visualize "forcing the line of a river" as involving of necessity crossing a river against heavy fire and strong opposition, whereas it usually means getting across the river at some point or points with little or no fighting and thereby turning the whole of the river line. Similarly "seizing the passages over a river" is not so obvious as it sounds, but varies in accordance not only with the topographical features, but with the subsequent intentions of the commander of the army. These are only two examples of the fashion in which river operations are freely mentioned but rarely carried out. The point which I desire to make is that, if a war such as we are training for were to break out, the crossing or defence of rivers, which form particularly good obstacles against tanks or other cross country vehicles, would be among the problems which would confront many of us almost immediately, and that they are problems which require careful consideration.

(*c*) *Points to be concentrated on during Training.*—If we are to tackle such operations with the greatest likelihood of success it is important that—

(i) Our leaders, both senior and junior, should have studied the question beforehand;
(ii) Our troops should have been trained for such of the tasks as they will be called on to perform;
(iii) Our units and formations should be provided with adequate and suitable equipment.

II.—Defence of Rivers.

The value of rivers as obstacles is a debatable point. Napoleon, who considered mountains, deserts and rivers the three main obstacles to an army, put rivers third; the teaching of history would appear to confirm this, as in many cases a river line has proved to be a snare and a delusion to those who have placed undue reliance in its power to hold up the enemy's advance

But defence in any form is always a more difficult and contentious problem than attack; so I propose to deal with the defence of rivers before discussing the crossing of them. Rivers may be of so many different kinds that it is particularly difficult to lay down anything at all definite about their defence; each case must be treated differently and on its merits. Rivers may be broad or narrow, deep or shallow, rapid, sluggish or with no current at all (as in the case of canals); they may have one channel, with or without islands therein; or they may be canalised, which fact often means they have marshes along them. When, in addition to this, we remember that the country on either bank may vary in every possible way, it is easy to see that any attempt to state definitely that a river should be held in this way or that is bound to lead to disaster.

A canalised river is probably one of the most difficult to cross. None of its channels, taken separately, may be a formidable obstacle, but, taken all together and remembering that the ground between the channels is usually marshy, it is clear that they may prove far more difficult to negotiate than a single broad channel. Many of you probably know the Somme near Péronne and realise what an impassable obstacle it would be if it were held in strength. It is true that it was crossed three times in 1917 and 1918. But the first occasion was during the German withdrawal to the Hindenburg Line in the spring of 1917; the second was during the German advance in March, 1918, when the Fifth Army was not in a position to organise any systematic defence; while the third occasion was during our final advance, when the Australian Corps of the 4th Army captured Mt. St. Quentin and turned the whole of the river line. If the 4th Army had been called upon to carry the river by a frontal attack, their task would have been truly formidable.

(*a*) *How to utilise a River in Defence.*—It is probably safe to lay down as an axiom that "*Rivers never have been, and less still can they now be, considered to constitute a defence in themselves, but they are of valuable assistance to the defence.*"

A defensive position can be taken up either behind a river, which is the most usual plan, or in front of it; but the latter plan is usually only adopted for some special reason.

If the position taken up lies behind a river there are two uses to which the river can be put. It can be treated—

(i) As an obstacle in itself, in which case it must be under close observed fire, and the battle must be fought to prevent the enemy crossing the river.

(ii) As a protection to the main defensive position, in which case the river is used chiefly to limit the enemy's scope in the attack, to interfere with his rearward communications thereby checking his further advance, and to become a source of grave danger to him if he should be counter-attacked.

Seeing that the most recent military operations open to study are to be found in the Chinese Civil War of 1922–24, it is interesting to read that General Suntzu, the great Chinese General of the 5th century B.C. whose military writings are probably the earliest in existence, has a good deal to say about crossing rivers, of which there are many in the country where he conducted his campaigns. He states quite definitely that " the passage of a river should not be disputed, as the enemy will probably give up the attempt and make the passage at some other point, but he should be attacked when half his force is across the stream."[1] Whether or not the Chinese have adhered to this principle in the recent campaign I do not know, but, without agreeing that General Suntzu was right to dogmatise so definitely as that, there is no doubt that a scheme for well timed counter-attacks against an army which is still engaged in crossing a river is one of the soundest plans of defence.

(*b*) *Italian Defence of the Piave.*—A good example of the defence of a river under modern conditions is to be found in the Italian defence of the Piave in 1918. This was an organised defence. The Italians had been granted many months in which to prepare for attack; they were thereupon duly attacked and were thus able to test their defensive arrangements. It occurs very rarely in war that everything works out in this fashion according to programme. The defensive line on this part of the Italian front could be divided into two main sectors—

(i) In the right or southern sector the ground is more or less flat and neither bank commands the other; the river is broad and shallow with islands in it but liable to sudden flood.

(ii) In the left or northern sector the river flows round the Montello, which is a considerable ridge, hill or mountain with steep sides. Between the bottom of the Montello and the river there is in most places a strip of flat ground varying from 200 to 600 yards in breadth.

In the southern sector the Italians had treated the river according to the second method mentioned above, viz., as a protection to the main defensive position. They realised that the river was not a sufficiently formidable obstacle to justify their trying to prevent the enemy crossing, but that it was a sufficiently serious obstacle to limit the scope of his attack, to impede his subsequent operations, and to be a source of danger when he was counter-attacked. In fact, they took the advice of the Chinese sage and the result fully justified their (and his) previsions. The Austrians attacked on 15th June; they succeeded in getting across and in establishing two bridgeheads about 6 miles apart. The Italians were able to prevent them extending these bridgeheads beyond a certain point, and it was not until the evening of the 17th that these bridgeheads were able to connect up with one another. After many days' fighting, during which the Italians delivered repeated counter-attacks and after

[1] See "The Book of War"; translation by Capt. E. F. Calthrop, p. 12.

their aeroplanes had inflicted heavy casualties on the Austrian reinforcements and supply columns as they came across the river, the Austrians were driven back in disorder with heavy losses. It is true that heavy rain and the sudden flooding of the Piave carried away most of the bridges, but this merely assisted to make the defeat of the Austrians more severe than it would otherwise have proved.

In the northern or left sector the Italians adopted the same method of defence to the north of Nervesa. Here on the Italian side there extended about 200 yards of flat open ground between the river and the foot of a precipitous hill rising to about 250 ft.; behind this the Montello bastion provided a formidable obstacle to the attackers. The river flowed in two channels, with an island in the middle. Actually in order to prevent the enemy crossing the river, it would have been necessary to put troops on the island, which was under direct Austrian observation. The Italians, therefore, considered it impossible to prevent the actual crossing of the river. They put out a thin line of observation posts on the island, to give warning of impending attack, while their main defensive position consisted of hidden machine gun posts at the foot of the hill, covered by infantry in trenches at the top of the hill. When the attack took place, the Austrians, under cover of a mist thickened by smoke, crossed the river without much difficulty. On the further side, however, they came under the devastating fire of the Italian machine guns, which swept the open ground, and so the attack broke down.

West of Faize the situation was rather different. The valley grows very much wider on both sides of the river, and there extended about 600 yards of flat ground on the right or Italian bank between the stream and the foot of Montello. As the observation from the Austrian bank was inadequate, the Italians had established an outpost line on the edge of the river channel and intended to resist any crossings. Their plans were, however, upset owing to their positions being flooded. They, consequently adopted a kind of compromise, in that they established their main defensive position in a regular trench line midway between the channel and the foot of the hill. On the top of the latter machine guns were posted, which could only bring plunging fire to bear. From the trenches on the flat, however, the Italians could not actually bring rifle or machine gun fire to bear on the crossings, while they were themselves exposed to artillery fire.

The Austrian attack at this point was completely successful. Whether this was due to the Italian dispositions or to other reasons I do not know, but there seems to have been no reason why—other things being equal—the Italians should not have held out here as well as at Nervesa. It would be unwise to base too many lessons on this experience of the Italians or to imply that holding the river itself and fighting for it is necessarily unsound, but what I do wish to emphasise is that, *unless the defending side is vastly superior or the river is a very formidable obstacle without any weak spots, it is safer to use it as a protection to the defensive position*, that is, to concentrate all efforts on

preventing the enemy extending his bridgeheads and on maintaining troops in readiness for counter-attacks.

(*c*) *A Defensive Position in Front of a River.*—The two chief reasons which may render it advisable to take up a position in front of a river are these :—

(i) The ground may by nature be very strong for defence, or the occupation of some features in front of the river may be of importance for the defence of the rest of the position behind the river;

(ii) The defending army may be strong and anxious to deliver a counter-attack.

The occupation of Hlangwani and Monte Cristo by the Boers on the Tugela in 1899 is a good example of (i). They realised that, owing to the sudden northward bend which the river makes at this point, it was necessary to hold these hills which more or less commanded the position behind the river to the west. As soon as the British realised the tactical importance of these positions and concentrated on capturing them—before actually crossing the river—the operations were successful.

It is, nevertheless, a rash policy, as a general rule, to occupy a position in front of a river, or partly in front of and partly behind it, unless the defending commander is confident of holding the enemy and wishes to deliver a decisive counter-attack. If that is not the case and the position is not particularly strong, the results may be disastrous.

A good example of the truth of this statement is found in the German defence of the Hindenburg Line near Bellenglise on 29th September, 1918. The St. Quentin Canal, along which the German position was situated at this point, was at many points a serious obstacle. Not content with using it as such, the Germans attempted to defend the west bank. The position which they took up was strongly wired, but after a 56 hours' preliminary bombardment there was little wire left. Then the force which they placed across the canal was not strong enough to be able to counter-attack, yet large enough to prove a serious loss to the defence if it should be overwhelmed. For this very reason bridges were left standing over the canal whereby the garrison should withdraw if necessary. So it happened that when the Germans west of the canal were overrun almost at the start, there was no time in which to destroy the bridges, and the 46th Division in many cases used them to cross the canal. It was a bad mistake from the German point of view.

(*d*) *Defence of the Suez Canal.*—The method of defending the Suez Canal against the Turks in 1914–1915 and 1915–1916 is rather interesting—although little fighting took place—as it shows how a strong army may adopt an entirely different plan of defence to a weaker force. In 1914–1915 the British Army was weak and adopted a *rôle* of passive defence, the bulk of the troops being kept behind the canal, with the result that, when the Turks after a half-hearted attack commenced

their retreat, this most favourable opportunity of counter-attacking could not be utilised. In 1916, when the British Army was very strong, a defensive position was taken up well in advance of the Canal and all arrangements were made to counter-attack and annihilate any Turkish attack. Unfortunately the Turks never attacked.

III.—Crossing Rivers.

Let us now turn to the question of crossing rivers.

(*a*) *The majority of attempted River Crossings have been successful.*—It is remarkable that in all previous wars—including the Great War—most efforts made to cross a river which is being defended have proved successful. This I attribute mainly to one thing, viz., that an army which adopts a defensive *rôle* behind a river is more or less "blind." Patrolling becomes almost impossible and there are no means at all, or rather before the advent of aeroplanes there were no means at all, of knowing what the enemy is intending to do. An army in such a plight is, therefore, very liable to be surprised. Surprise is, in fact, *the one* great weapon in the hands of the commander who has to cross a river, and he must exploit it by every means in his power.

(*b*) *Crossing of Rivers by Wellington.*—Wellington during the Peninsular War achieved some of the most famous of river crossings. The crossing of the Douro, the Bidassoa, the Nivelle and the Adour are all classical examples of such an operation. In each of these the enemy was completely surprised and deceived as to where the crossings were to take place. The very boldness of Wellington's plan on the Douro, where he actually started sending small parties across the river by boat towards the Seminary, which was situated almost in the town of Oporto and full of French troops, probably brought about its success. The sudden throwing of the bridge of boats across the Adour between Bayonne and the sea is another example of doing the utterly unexpected and what might almost be termed the impossible. A large number of boats were brought round by sea, taken across the bar at the mouth of the river in a raging gale which was thought to have rendered the operation impossible (several boats, in fact, were lost), and, before the French knew what was happening or could take steps to drive back the covering force which had been sent across, the bridge had been completed and the river crossing secured.

(*c*) *Napoleon's Crossing of the Danube, 1809.*—The crossing of the Danube by Napoleon in July, 1809, however, probably remains the most remarkable instance in all history of the passage of a great river in the face of a powerful enemy. The Austrians had assembled 140,000 men on the spot and 20,000 within 30 miles; Napoleon was able to muster about 170,000. Napoleon had already effected one crossing but had been forced back on to the island of Lobau, which is about 2 or 3 miles long. The Archduke Charles entrenched himself on the opposite bank facing the N.W. side of the island, where Napoleon had previously

crossed and whence he could deliver an attack without exposing his communications. Napoleon, realising that the only way he could hope to cross was by surprise, did all he could to encourage the idea that he would cross at the same place again. Attention was drawn to the western end of the island, where bridges were prepared as though in secret, yet in such fashion that they did not escape the enemy's observation. Meanwhile four pontoon bridges were secretly constructed and hidden at the eastern end of the island. One stormy night these four pontoon bridges were dragged into position and the crossing began: 150,000 men, including 20,000 cavalry and 400 guns, gained the north bank in 24 hours. The enemy, completely taken by surprise, was unable to concentrate on his left in time, and thus forced to fall back to the neighbourhood of Wagram. Napoleon staked all on surprise, and, even though the direction of his attack uncovered his own communications, he concentrated every single man on this decisive stroke. The importance of observing these principles is just as great now as it was in 1809.

(*e*) *Surprise in Modern War.*—The question as to how far surprise can be effected nowadays as compared with 100 years ago might form the subject of numerous lectures. On the one hand there has to be reckoned the advent of the aeroplane and the better means at the disposal of the defenders for finding out what the enemy is doing; on the other, there is increased mobility and greater fire power, whereby the attack can suddenly bring large forces and overwhelming fire to bear at the decisive point. On the whole it would seem that surprise is at least as easy to obtain now as it used to be.

(*f*) *Classes of Rivers to be crossed.*—Rivers which an army may be called upon to cross in war can be divided into three main classes:—(i) the very broad streams such as the Rhine and the Danube; (ii) less broad but still too wide to be spanned by "assault" bridges; (iii) narrow rivers or canals which can be crossed by "assault" bridges.

Unfortunately (or possibly fortunately for those who might have been called upon to make the attempt) the crossing of really wide rivers such as the Rhine in the face of an enemy did not occur in the main theatre of the Great War. Little is to be learnt about that type of operation under modern conditions from this particular campaign.

IV.—Some River Crossings of the Great War.

The following are a few instances taken from the Great War.

(*a*) *Austro-German crossing of the Danube, October,* 1915.—The Austro-German passage of the Danube near Belgrade in October, 1915, does not help us very much, since the Serbians had so much to defend and to guard against that it was an easy matter for the enemy to surprise them. After a terrific bombardment the Austro-Germans got across without much difficulty, but it is interesting to note that about a

fortnight elapsed before a bridge was built across the river. Provided the Serbians had possessed better means of transport and had not been distracted by the Bulgar advance against their right flank, it is easy to see that the bridge might never have been put across.[1] This strengthens the belief that under modern conditions it may be fairly easy to cross a wide river, but it will be very difficult to establish a firm foothold on the far side. The very factors which render it possible to get across make it easier than it used to be for the enemy to concentrate large forces against the covering troops; in fact the crossing of a wide river might nearly resemble a landing such as that at Gallipoli, where the original operation was found to be possible under the most adverse conditions, yet the expedition failed owing to inadequate arrangements for landing reinforcements and munitions once a foothold had been established.

(*b*) *River Crossings in Mesopotamia*, 1917.—The advance on Baghdad in February and March, 1917, furnishes a brilliant example of forcing the passage of a fairly broad river in a war of movement. The two operations to which reference is made are (i) the crossing of the Tigris above Kut in the Shumran bend on 23rd February, prior to the capture of the main Turkish position at Sannaiyat; and (ii) the crossing of the Diala between 7th and 10th March, during the subsequent pursuit of the defeated Turks. These two operations bring out forcibly the importance of surprise. The first involved crossing a flooded stream over 300 yards wide and was successful, while the second involved the crossing of a stream only about 120 yards wide against a retreating and beaten enemy, yet only succeeded after two costly failures and a change of plan. Surprise entered largely into the former, but was absent from the latter.

(*c*) *Crossing of the Tigris, February*, 1917.—The crossing of the Tigris shows how an enemy in position behind a river can be mystified by the attack. The British Army prior to the crossing held the right bank of the Tigris and the Turks the left bank for 30 miles above Sannaiyat. At the eastern end of this stretch of river are two very pronounced bends, the Kut bend and the Dahra bend, which formed salients in the Turkish line. It was all-important to deceive the Turks as to the point where the crossing was to be made, as, if he collected his strongest force in one salient it would be difficult for him to transfer the troops quickly to the other. The plan was to make the Turks imagine that the crossing was to take place in the Kut bend or east of it. With this object in view feint crossings were made at various points, while pontoons were towed secretly up a branch stream towards Kut and an enemy aeroplane was allowed to see them; loud noises of preparation were made at the spot where the crossing was actually

[1] There was also a similar crossing of the Danube by the Germans in November, 1916, during the Rumanian campaign. It was a more rapid affair than this earlier operation. *See* R.U.S.I. JOURNAL for May, 1925, page 225.—[ED.]

to be made and secret yet audible preparations were made near Kut itself. The result of this preparation was that the enemy moved infantry and guns into the Kut peninsula, whence they could not be brought back to the actual point of crossing in time to be of any use. But, even though the point of crossing was a surprise, the operation was no "walk over." The parties detailed to establish the bridgehead were sent across in pontoons at three points a few hundred yards apart; two crossings had to be abandoned owing to the heavy fire, but enough troops were got across to clear the bank and enable the building of the bridge to commence at about 8.30 a.m. By 4.30 p.m. the bridge was completed, a very fine engineering feat, for the river is 300 yards wide with a 5-knot current.

(*d*) *Crossing of the Diala, March*, 1917.—The crossing of the Diala was an attempt to rush troops across a stream 120 yards wide in order to deal with a retreating enemy. No surprise was attempted and there was no time to carry out any flanking movement; no artillery bombardment was arranged, but it was hoped that against a defeated and somewhat demoralised enemy risks might be taken. That, however, did not prove to be the case. The Turks were ready and in spite of most gallant efforts on the part of the attack not a man got across. The next night another effort was made at the same spot under cover of an artillery bombardment, again without a flanking movement. A few men got across under cover of the dust raised by the artillery bombardment, but when the guns ceased fire no more were able to make the crossing, while those who had got across only maintained themselves with great difficulty next day until the river line was finally turned on the third night by a force which made a wide turning movement further up stream. This operation brings out clearly the need for surprise if a crossing is to be successful even against a retreating enemy. Incidentally it also shows what valuable assistance smoke would have afforded on such an occasion.

These examples have all been selected to emphasize the need that exists for surprise and to show how, if surprise is exploited to the full, rivers which constitute apparently the most formidable obstacles can be crossed against an enemy who is waiting in position on the other side.

(*e*) *Crossing narrow Rivers and Canals.*—It might be concluded that, if broader rivers are comparatively easy to cross, it should be an easier matter to cross narrow rivers or canals. This may be so up to a point, but it must be remembered that it is much easier for the defence to discover what is happening on the far side of a narrow waterway and therefore to guard against the great danger of surprise. Whatever the value of small streams may have been in defence during previous warfare, there is no doubt that they will be increasingly used in future wars. The reason for this statement is to be found in the advent of the Tank. Tanks can cross wire and most other obstacles, but at present quite an insignificant stream can hold them up. A stream is just as formidable an obstacle to the Tank as wire is to Infantry and Cavalry. So the

Germans made all possible use of rivers and canals during their retreat in 1918. Haunted by the fear of Tanks they welcomed a waterway as a temporary refuge against their arch-enemy, and, although each waterway was forced in turn, it *did* delay the advance and give the Germans a little breathing space.

(*f*) *Crossing of the Sambre-Oise Canal, 4th November*, 1918.—Almost the last big engagement of the Great War was the battle of 4th November which included the crossing of the Sambre-Oise canal by IXth Corps. This is probably a fair example of the type of operation which may in the future have to be carried out frequently against an enemy who uses streams as a protection against Tanks. I propose, therefore, to go into a certain amount of detail in considering how the task was carried out by 1st Division, which was the right Division of IXth Corps.

The canal was about 45 feet in width, with flat enclosed country on each side. At one point on the Divisional front there was a lock, one gate of which had been blown up; otherwise there was no crossing place of any sort. The selected plan was to set two brigades across, one at the lock and one by means of assault bridges, while the 3rd Brigade attacked Catillon, a point which stood on the near bank of the river and on the left of the Divisional line but was still occupied by the enemy. It was obvious that the enemy must know of the proposed crossing. The only possible form of surprise was thus to keep him in the dark as to the date, the hour, and the actual points of crossing. Preliminary reconnaissances, therefore, had to be carried out very carefully, so as not to disclose our intentions. Accordingly, any effort to prevent the enemy keeping posts on our side of the canal was definitely ruled out. Some opinions were in favour of landing covering parties on the far bank prior to the attack, but this was also ruled out by the G.O.C. 1st Division, who thought that any parties sent across would put the enemy on his guard and themselves be in danger of being defeated before they could be reinforced. Ten days were available during which to work out all details, make bridges and teach all concerned exactly what each man would have to do, although as regards the 1st Division the preliminary arrangements for crossing the canal could undoubtedly have been completed in five days. The attack was launched at dawn (when there happened to be a considerable fog) under a heavy artillery bombardment, which included smoke. Both battalions which crossed by assault bridges got across without difficulty; the bridges were in position at zero plus 9, and the troops got over with very few casualties. At the lock the whole attack was held up by a small stream which was wider than had been allowed for; there was also a serious danger of a complete breakdown of this attack owing to a heavy trench mortar bombardment opened by the enemy. A crossing was eventually effected, but only after heavy casualties, and chiefly owing to the great gallantry and powers of leadership displayed by two officers. The undoubted reason of attack at the lock proving so costly and so nearly ending in failure may be ascribed to the fact that this was a very obvious place

at which to cross and the Germans had prepared for the eventuality. The attack did not come as a surprise as it did where the assault bridges were put across.

(*g*) *Crossing narrow Streams or Canals in a War of Movement in the future.*—I presume that the above operation be taken as a model of the crossing of a small stream. The reply will at once be made that it was an easy thing to do against the Germans of November, 1918, and that it is therefore unsafe to base any lessons thereon. I do not altogether agree, and can see no reason why such an operation should not be successful at any period of any war so long as :—

(i) The attack is delivered before the enemy has had time to make good defensive arrangements;
(ii) The enemy is kept in the dark as to where the actual crossings are to take place;
(iii) The actual crossings are supported with all available fire power, including smoke.

The preparations for the crossing of the Sambre-Oise Canal occupied 10 days, but is there any reason why an attack of this nature should not be delivered at 10 hours' notice? I think not.

(*h*) *Value of Aeroplanes for Reconnaissance.*—Reconnaissance is what takes time, and I see no reason why aeroplane reconnaissance and aerial photography should not be freely used on any occasion of this sort. Photographs can easily be taken during the approach to the stream and distributed to the attack so as to be used by all commanders when working out their plan of attack. They are invaluable for showing the breadth of the river, nature of approaches on each side, etc. They were so used during 1st Divisional inter-brigade operations on the Arun in 1923 and proved useful. Having to a great extent solved the reconnaissance problem by the use of aeroplanes, success will depend largely on how far :—

(i) the commanders know how to tackle such a task;
(ii) the troops have been taught what they have got to do; and
(iii) the most suitable equipment is ready to hand

V.—Peace Training and Allotment of Bridging Equipment.

The question of training during peace is, of course, a matter of Army policy, and I hope that nobody will imagine that I am trying to state how the Army should be trained. I have already alluded to the difficulty of practising river crossings during peace training in England and to the consequent lack of familiarity which commanders and senior officers possess of such operations. I now propose to deal with the actual training of the troops. I consider that training in bridging ought to consist in teaching Royal Engineers to bridge and Infantry and other arms to cross bridges; this, of course, includes furnishing parties to help the R.E. to carry the bridges down to the sites selected. I have always held

that the days which used to be spent in teaching Infantry to build bridges, complicated structures such as trestle bridges or single-lock bridges, or to use bridging expedients such as bales of hay or petrol tins, was pure waste of time. The Infantry have plenty to learn and any number of weapons to practise with without turning them into half-trained engineers. Let the Royal Engineers be taught to make the bridges and then let the Infantry train with the R.E. and practise crossing bridges of various kinds, assault bridges included. There is very much to learn in crossing assault bridges during an attack, and troops who have not practised it before will do it very badly at the first time of asking.[1]

In a war of movement, where speed is essential, all such training must have been carried out beforehand. If such be the case, I see no reason why any river of normal size should not be crossed at the shortest notice: provided always that the necessary and most suitable equipment be available.

This leads to a very contentious matter, one which has been discussed ever since the late war, and yet there still seems to be a very great difference of opinion as to its correct solution :—*What bridging equipment should be allotted to various formations?*

The suggestions I am now putting forward are based on the following assumptions:—

(i) A division ought to be able to place infantry and close support weapons across a stream of moderate size at very short notice, and to follow them up if necessary with 1st line transport and field guns.

(ii) The corps should be responsible for getting across anything heavier than the above.

If these assumptions be taken as correct, it will be necessary for a division to carry assault bridges and pontoons. The question of transport, of course, enters largely into this problem, and it must be remembered that a division must not be loaded up with more transport than is necessary. However, I do think that, if a division carried say 9 60 ft. assault bridges ready made up and the same amount of pontoon and trestle equipment as before the war, viz., enough to bridge a width of 75 yards, it would not require any such inordinate amount of transport.

Assault bridges can, I gather, be put across a stream of 150 to 200 ft. in width, if there is not much current running, but I have taken 60 ft. as a normal length. I have selected 9 as the number because 3 assault bridges can be formed into 1 pack bridge, and I suggest that in order to economise transport the one set of bridges should be utilised for both purposes. The pontoons and trestles would be used for putting the 1st line transport and field artillery across, and the crossing of the mechanical transport, etc. would take place on bridges constructed

[1] An Appendix on this subject may possibly be included in the next issue of Infantry Training.

under corps arrangements. The proposals I have made under the head of Training and Equipment are merely put forward as one point of view; no doubt there are others, and no doubt the whole question is receiving full consideration. But, I think we are all agreed on the importance of ensuring that crossings may be undertaken with the minimum of delay. The less the delay, the greater the likelihood of surprise, and, as I have stated several times before, surprise is the secret of success.

VI.—Conclusion.

In conclusion I would state that I claim no originality for anything I have here put forward. The broad principles governing attack and defence apply to river problems in just the same manner as to anything else. If anything, however, these principles are accentuated in operations of this nature. I have tried to bring out the fact that in defence, depth and arrangements for immediate counter-attacks are all important, while in attack surprise and concentration of every available man and weapon at the decisive point are essential to success.

Defence, as it always is, is the more difficult problem of the two, and the more river crossings are studied, the more the conviction makes itself felt that the majority of attacks made across rivers have been successful. I attribute such constant success largely to the "blindness" of a force situated behind a river; on the other hand, I imagine that, in many cases, crossings have not been attempted for fear they should not be a success. This is really equivalent to trial and failure, and it should be our aim to reduce failures of this kind to a minimum. In order to do so, leaders and troops must be thoroughly trained in peace, making use of the actual equipment which will be available in war.

Rivers are still an obstacle to Tanks and similar vehicles, and are likely for that reason, if for no other, to play an increasingly important part at any rate at the beginning of the next war. I am sure you will agree with me, therefore, that the question of how to train and equip an army, so that it shall be able to cross waterways efficiently and as speedily as possible, may be considered of special interest to soldiers of the present day

DISCUSSION.

The Chairman: Does any gentleman wish to make any observations on this vast subject before we separate?

Lieut.-General Sir R. Egerton: Mr. Chairman, I should like to say something in connection with the description given by the Lecturer of the crossing of the 14th Indian Division at Kut. He very rightly emphasised the value of surprise in all river crossings, but in describing that crossing I understood him to say that Sir Stanley Maude had arranged for certain feints to be made. It is true that there was a demonstration of sorts made in the Shatt-el-Hai; some boats were moved about to give the Turks an idea that we were going to cross opposite Kut, and I understood the Lecturer to say that there was another feint made at the

bottom of the Shumran Bend, where the actual crossing was made. My recollection is there was no indication whatever given at that point. In fact, we were very careful to see that we did not give the Turks any inkling that we had any intention of crossing there. There were demonstrations made further down, nearer the Turkish defences on the opposite side, but the secrecy of our intention on the Shumran Bend, according to my recollection, was most carefully maintained.

The Lecturer said also the enemy behind the river was blind. I mention in that connection that when we were moving down towards the Shumran Bend late in the evening the Turks could hardly tell whether we were going to cross there or not—we might have been going to relieve our troops in the Dahra Bend—but as a matter of fact, whilst we were in the course of movement a Turkish aeroplane flew over whilst there was still light enough for it to see, but, strangely enough, they did not observe us, and they did not see our preparations, although they might reasonably have done so. As regards the Turkish reserve not being at that spot, the Turkish Divisional Commander who surrendered with a large part of his Division in the Shumran Bend, was, of course, very downhearted at the situation in which he found himself, and he asked me how we had got across—how we had done it; he supposed his men must have been asleep. He further said that two nights previously a Council of War was held at Kut, and they had discussed the possibility of the river being crossed at Shumran in its present condition in flood; and the conclusion they came to was that "none but a fool would attempt it." I think that accounts for the Turkish reserves not being in position at that point. They had all their local reserves ready to tackle any attempted crossing there, but they had decided in their own minds that no one but a fool would attempt seriously to cross the river in its then condition, and their general reserve was elsewhere.

The Lecturer described it as being a 5-knot current. As a matter of fact, according to my recollection, it was more like 7 or 8 knots; but the Engineer Officer is present who laid the bridge there, and he might be able to confirm me on that point.

MAJOR-GENERAL SIR ARCHIBALD MONTGOMERY: Mr. Chairman and Gentlemen, the Lecturer has covered a very large field, with many interesting examples. There is only one period I should like to emphasise in regard to what he said, and that is the period covering the last three months in 1918. Anyone who took part in the advance in France in 1918, or who has studied it since, cannot fail to have noticed what the Lecturer drew attention to, that the moment the Germans were driven out of one position behind a river or a canal, they immediately went back behind another canal or river. The messages sent back by von der Marwitz, who was in command of the 2nd German Army in front of the 4th British Army at the beginning of the Battle of Amiens, and also the messages from Ludendorff and Crown Prince Rupprecht of Bavaria to von der Marwitz are very interesting reading, because already by the 9th August—that is the day after the first attack of the 4th Army—Ludendorff, Prince Rupprecht, and von der Marwitz were already discussing the advisability of getting behind the Somme, and the reason they all gave was that they wanted to get into a position in which surprise tank attacks could be avoided. That undoubtedly was the spirit that influenced the Germans throughout that retirement—always to get behind some river or canal obstacle before they were attacked again. I think that is perfectly certain to be the case during the next war. When we embark on our next war and we are armed with tanks, the Germans, or whoever may happen to be our enemy on that occasion, if they have not got tanks themselves, will always get behind some obstacle of that sort. We probably then, as the Lecturer said, shall not have 10 days to

collect material and make our plans in full detail. What we shall want to do, if we wish to keep the initiative, and keep the enemy on the run, is to get across an obstacle of that sort in one or two days, preferably in 10 or 12 hours, and to do that there are three things which are necessary. First of all, we must train our leaders and troops for it; secondly, we must have the material ready and close up; and, thirdly, we must decide how that material is going to be carried.

I sincerely hope that before long we shall see some official instructions issued about assault bridging, and that it will be laid down definitely what material is to be carried and how it is to be carried.

There is only one other point I would like to make, and that is as regards the study of past campaigns on the subject of river crossings. I do not think there is any that is more profitable to study than the Tugela campaign in December, 1899, and the following January and February. It is full of lessons. As you know, there were four attempts to cross, and in none of those attempts was there any surprise at all. In the first attempt there were a great many mistakes made, and, if you remember, perhaps the most important of all was that, when the Irish Brigade went forward to cross near Colenso, no one had even taken the trouble to reconnoitre where it was going to cross, and that Brigade advanced across the open, unsupported by any guns, in close formation, towards a ford, for the exact position of which it was relying solely on information given by a Kaffir who lived near the river. Crossings attempted in that manner are, of course, bound to fail, but that is only one of the many lessons which can be learnt from a study of the Tugela campaign.

MAJOR-GENERAL SIR PETER STRICKLAND: Mr. Chairman and Gentlemen, I should like to emphasise two points that the Lecturer has made, and they seem to me to be extraordinarily important points. He said as regards the crossing of the 1st Division on the Somme Canal that we were given 10 days in which to do it, and 10 days was the period my Commander gave me to do it on that occasion. The Lecturer said I could have done it in five days. As a matter of fact, I could have done it, perhaps, in a little less, because I had an extraordinarily good C.R.E., and very efficient Field Companies, but they had to scour the country in order to find a supply of tins and wood and rope, and every mortal thing they could find in order to get these bridges into order; but I understand why I was given 10 days to do it in was because the general situation was such that it was not necessary to do it earlier. Of course, that was not my business, but the business of those who were much higher in command than I was.

But what I do visualise is that, if at the beginning of the war I am commanding a Division, and there is a waterway in front of me, I should fully expect my Corps Commander to say to me: "I hope you will have cleared the enemy to the far side of that waterway by night, and I fully expect you to attempt to force that river to-morrow morning." That is what I should expect him to say to me, and I should say: "I am very sorry I cannot do it, and it is not my fault, because I am not provided with the material to do it with; but, on the other hand, if we are provided with these assault bridges, and I could say we shall be ready at darkness to-night, and I select my crossing, then I have every confidence that before daylight the next morning we should have effected a crossing." I think that point which the Lecturer has made about having these assault bridges ready is a very important one.

FLIGHT LIEUTENANT C. A. B. B. WILCOCK, A.F.C., R.A.F.: Mr. Chairman, the Lecturer clearly brought out the fact that to establish the position after having made a "river crossing" is usually more difficult and at the same time more important than the actual crossing.

It is assumed that for a position to be consolidated, the bridges must necessarily be retained in their positions, to allow munitions, supplies and reinforcements to cross. This being so, I suggest that the defence of the bridges is an all-important point in dealing with this question.

A bridge—once it is thrown across a river—becomes a stationary object; further, it is an object clearly visible from the air by day and night, by virtue of the fact that it breaks the line of water. This being so, I suggest that a bridge can be considered as an easy objective for aircraft.

It is necessary for the bridge to be retained in position, therefore it is necessary to prevent hostile aircraft destroying it, and to prevent hostile aircraft bombing and machine gunning the bridge, at their pleasure, you must have local air supremacy, and so prevent their approach. If this is not done, I suggest that the operations on the far side of the river may be unsuccessful and the position extremely difficult, if not impossible, to establish and retain. The question of "air supremacy," therefore, appears to enter into the problem of "crossing rivers."

LIEUT.-GENERAL SIR WALTER BRAITHWAITE, K.C.B.: Mr. Chairman and Gentlemen, I only want to say one or two words with your permission. I did not quite gather either from the Lecturer or from Sir Peter Strickland whether I was wrong in giving that 10 days for crossing or whether I ought to have given him less. However, I think he wanted most of it. The point I really wanted to make was in regard to the crossing of the Sambre et Oise Canal on the 4th November. The Lecturer alluded to somebody trying to persuade the G.O.C. of the 1st Division to send parties over to reconnoitre and do all sorts of things of that sort. I agree that course, in the circumstances, would have been unwise. General Strickland had made a plan—and a very excellent plan—but I do not know whether he is aware of what happened after the plan was approved? I happened to be the Corps Commander at the time, and there was trouble with our Allies on the right, because they also had to cross the Somme Canal lower down, and they were very sure—in fact, absolutely certain—that the 1st Division plan could not succeed, and, therefore, that their failure would prejudice the French attempt. I had urgent appeals for at least two days running, and on the third day I had a long interview with the French Corps Commander, at which I was submitted, for about half an hour, to a very severe sort of staff college lecture on the impossibility of the 1st Division forcing the passage, unless they abandoned the plan that had been already approved and adopted the plan of the French Corps Commander, many pictures of which were drawn for me on a sheet of paper. However, I assured him that the 1st Division would get across, and no doubt he would get across also, and as our forces were to join up at a place called La Justice, I very nearly brought about an international rupture by offering to bet him anything from 10 francs up to 100,000 francs that we would get there first!

COLONEL J. W. S. SEWEL: Mr. Chairman, there has been a certain amount of interest expressed to-night in the question of what the bridging equipment shall be. I have been authorised to inform you what were the latest decisions on this point in case that matter of decided interest came up. As regards assault bridges, it has been decided to stock these assault bridges, and they will be sent up to the division when they are likely to be required under orders from superior commands. These assault bridges will make it possible, we hope, to avoid having to scour the country for materials, and will consist of the necessary fastenings and the necessary floats, and possibly will be supplied with a duck board to walk over it. Behind that, the pontoon bridge which has now been designed, and will probably be in the

hands of the troops this training season, can be made into two patterns of bridge, one of which will carry all M.T. and Divisional Artillery, or the same equipment can be turned into a bridge which will carry loads up to 18 tons for tanks or 16-ton axle loads. That equipment it has been decided shall be kept behind in a Corps Park, and it will be sent forward under the directions of the Corps Commander, as may be decided. It is considered that the removal of the equipment from divisions will shorten the divisional column, and will tend to ensure that all available pontoon equipment is delivered to the right spot at the critical moment.

Behind this pontoon equipment, again, there are steel bridges maintained in stock at the base to be sent forward only under orders of G.H.Q.

COLONEL SIR CHARLES YATE: There is one point the Lecturer has not touched upon, and that is the crossing of rivers by cavalry. He has confined himself to infantry. I think the crossing of rivers by cavalry is an important matter, and we hope to see the time when cavalry will take an active part in the military operations in the future, and they are not by any means defunct yet, despite the reductions that have been forced upon us. I have no right to speak, perhaps, because I have never taken part in any operations of crossing a river in war, but in peace time I have had a good deal to do in regard to crossing rivers in wild countries, and in my experience, which has been largely with Russian Cossacks and Indian Cavalry, I have found those two to be the best men at crossing a river of any forces I have seen. I recall to mind at the present moment one occasion when I was crossing the River Oxus in Central Asia. I had a party of Cossacks with me and Russian officers and a party of Indian Cavalry, and we crossed the River Oxus without the loss of anything whatever. I can remember very well we made a small raft out of inflated skins, and we crossed the saddles and baggage over by hauling the raft backwards and forwards by ropes. The way the Cossacks crossed that river and the command they showed over their horses in the water astonished me. They rode in and stripped naked on their horses, and the way they slipped off when they got into deep water and held on to the mane on the lower side, and by splashing their horses in their faces with water kept their heads up-stream was an extraordinarily masterly way in which to do it. The Indian Cavalry were just as good. The Lecturer did not tell us what steps have been taken to teach our own Cavalry how to swim a river, and how to keep the heads of their horses up-stream. We can all remember the loss of the 10th Hussars in the Kabul War, when nearly a whole squadron were drowned when crossing the Kabul River by the horses getting off the ford into deep water, though going down-stream, while the Indian Cavalry in front of them crossed without any loss whatsoever. I think more attention should be given to teaching our Cavalry to swim rivers.

THE CHAIRMAN: Ladies and Gentlemen, it remains for me to close the proceedings, and in doing so I wish to thank those who have contributed to the discussion. It should be helpful to officers, and particularly younger officers, to hear the views of those who have had experience in crossing rivers during active operations. I shall not follow them by adding any of my own experiences, as time is getting late. To me the lecture has been most refreshing, because it takes our minds away from those trenches in which most of us passed, figuratively if not actually, some four years of our lives during 1914–18, and the lecture serves to remind us that there is still such a thing as movement in war, and that the last war, as fought on the Western Front, is not necessarily a type of the next one.

Ever since battles have been won by brains rather than by brute force, much study and attention have been devoted to preparing for the next war, and in order to keep pace with changing conditions, millions of money have been spent on war

material, which has been condemned as obsolete almost as soon as issued. And yet, in spite of these efforts, the next war has always been full of surprises, many unexpected developments have been witnessed, preparations have proved to be defective in many ways, and, in general, Commanders have owed their success more to their ability to adapt available means to existing circumstances—that is, to their common sense—than to any special prevision on their part, either as to the character of the war in which they were engaged or to the effect of the weapons employed in it.

We are told that so many errors in preparation would not have been made had less attention been given to the last war and more imagination shown in regard to the next one. There is some truth in that, but it is also a fact that failures have sometimes been due to the neglect to apply the lessons afforded by past wars; in other words, too little and not too much attention has been paid to the study of military history. As we know, all great Commanders have been keen students, and there is nothing whatever in modern inventions or present-day conditions that renders the study of military history any less important now than it was before. From that standpoint in particular the lecture is useful, and we may be grateful to the Lecturer for bringing before us the question of crossing rivers, because in all wars there will usually be plenty of rivers to cross, and the Commander who has not made a study of crossing them may, as the Lecturer intimated, find himself in difficulties. I should like to congratulate the Lecturer on the able way in which he has dealt with this rather complicated subject, and I am sure you would wish me to express your warm thanks to him for the interesting address which he has been kind enough to give us.

The vote of thanks was put to the meeting and carried unanimously.

General Sir Edmund Barrow, in proposing a vote of thanks to the Chairman, said: It was a great advantage to the Institution that so eminent a soldier as the Chairman, General Sir William Robertson, should be willing to come here and support by his presence the views of the Lecturer, and he was sure that they were all very much indebted to the Chairman also for the excellent summary of the subject with which he had closed the proceedings. They all hoped, like him, that in future, wars would not be entirely confined to trenches, and that we should revert to the "war of movement."

The proceedings then terminated.

COMMUNICATIONS THE VITAL THREAD OF WAR.

By COMMANDER C. H. N. JAMES, R.N.

"EVIL communications corrupt good manners"; and bad communications wreck the best-laid schemes of strategy.

It is probably safe to assert that in every large operation of war there has been, at some place or time, an avoidable rupture of the vital thread along which passes intelligence of the enemy and orders for action. Important messages, either reports or orders, have failed to reach the officers to whom they were addressed at the right time or in the right form. An historic instance is the sacrifice of the Light Brigade at Balaclava, due, it will be remembered, to a well-intentioned order having failed to convey to the recipient the intentions of the officer who gave it. Failures in the human element will never be entirely eliminated, and must be regarded as one of the chances of war to-day just as much as in times past. Moreover, there always will be some badly-worded orders and some messages will be mutilated in the course of transmission.

A notable example of such misfortunes occurred during the German battle-cruiser raid on Scarborough and Hartlepool in December, 1915. Our light cruisers had got into action with the enemy's advanced screen. The British Vice-Admiral wished to recall to its screening position on his beam a certain light cruiser then in sight and disengaged, but, by some mischance, the signal of recall was addressed to the whole light cruiser squadron. This resulted in all the light cruisers immediately breaking off the action, and losing touch with the enemy, in order to take up their former screening stations. The Germans were never brought to action again that day, and emerged unscathed from what seemed a perfectly closed trap.

A somewhat similar incident occurred in the Russo-Japanese War, but in this case the situation was saved by individual enterprise. The Baltic Fleet had left its last anchorage and was making for Vladivostok in fog and mist, not unlike the conditions which often prevail in the North Sea. A line of Japanese armed merchant cruisers had been stretched across what was thought would be the track of the enemy's fleet; but the thick weather caused this line to be broken and the watching vessels to be out of their reckoning. In the first light of dawn, one of the armed merchant cruisers, the "Shinano Maru," sighted a suspicious vessel. It was a Russian hospital ship, a long way out of station. This immediately, and it would seem unwisely, began to make off, sending out a succession of signals which implied to the "Shinano" that consorts were near. She followed and in a few

minutes sighted a Russian squadron. This she at once reported by wireless, giving its position according to her own reckoning, which, owing to the fog, was considerably in error. Before long a Japanese light cruiser, which had taken in the "Shinano's" message, gained touch and, having previously fixed her position by shore lights, was able to give a succession of accurate reports of the movements of the Russian Admiral, who, strangely enough, made no effort to drive her off.

At this juncture, the Japanese cruiser received a signal of recall. Her captain, fully realising his importance as the only source of information, did not obey it, but reported that he was in touch with the enemy and asked for further instructions. He was rewarded by an order to carry on. In the conditions of watch and weather then prevailing, the Baltic Fleet, once contact was lost, would have had a more than average chance of reaching Vladivostok unscathed; but, as a consequence of the light cruiser's reports, Admiral Togo was able to bring the Russians to action at the time and place and in the tactical formation of his own choice.

Unfortunately, communications sometimes function all too well in bearing false information, just as, at others, vital intelligence fails to reach its destination. Nelson, it will be recalled, had a bitter example of the first in the West Indies. His almost uncanny gift of correctly appreciating a situation led him to the conclusion that he would find Villeneuve to the northward, but General Brereton sent him intelligence that the French were to the southward on a southerly course. Although Nelson disbelieved this at first, the weight of apparent authority caused him at length to act on it, with the result that he entirely missed the French, who had been all the time where his instinct placed them. Determined not to be fooled again when he had once more located Villeneuve, he organised a chain of frigates by which every movement of the French was known to him within three or four hours.

On the day which brought the crowning victory of his career, however, the fates were on his side, for there was an important failure of communications in the enemy's fleet at Trafalgar. Admiral Villeneuve, when he grasped the design of Nelson's plan of attack, hoisted a signal for Dumanoir in the van to wear and turn back so as to reinforce the hard-pressed centre of the combined Franco-Spanish Fleet. Had the van squadron seen and obeyed the signal, the course of the battle might have been seriously affected; but the flags remained unnoticed and Dumanoir sailed on, apparently abandoning his chief to certain destruction. However poor the tactics of the French may seem to be, the fact remains that all attempts by Admiral Villeneuve to improve the situation were brought to nothing by the failure of his communications at the psychological moment.

Nelson, it would appear, did not rely on being able to signal in action. It was his habit to explain in advance, at frequent conferences with his Captains, his intentions and wishes in every conceivable change

of situation; and his officers went into action knowing what each was expected to do. So only could the victories of the Nile and of Trafalgar have been achieved.

Modern inventions have so much facilitated the communication of orders, even in the heat of modern combat, that there is a tendency to wait for action to begin and then issue orders designed to meet the exigencies of each particular moment as it passes. The high speed at which naval actions are now fought, the facilities for changing course, formation and disposition which engine-power has brought about, make communications in battle doubly important; but, unless there remains the same general understanding of the Admiral's intentions, failure of communications is more than ever fraught with disaster.

Confusion and misunderstandings of signals in the Dogger Bank action in 1915, for example, led to that action being broken off when the flagship fell out, and to the escape of a hard-pressed enemy.

In a modern battle between armies on land, the machinery of communications—telephones, cables, wireless stations, and so forth—are, perhaps, more liable to destruction by shell fire than the corresponding organisation in a sea action. A position on land may have to endure a heavy bombardment for as many days as a man-of-war hours, till all these forms of communications have disappeared in the general wreck. And yet the importance of communications on land is difficult to overestimate. Innumerable examples might be quoted of the dire results of their failure. A typical one is that of the 25th Division's abortive attack at Beaurevoir on 4th October, 1918. This was principally due to one regiment not receiving its orders in time, in consequence of which it never attacked at all till too late, and then was very rapidly brought to a standstill.

Major-General J. R. E. Charles has said that, given an initially sound tactical plan and properly-trained troops, the success of a modern battle depends 25 per cent. on battle tactics and 75 per cent. on communications to the various units engaged. In the last years of the war in France, telephone and telegraph cables to the trenches were buried 6 ft. or more below the surface to save them from shell fire; and lamps, carrier pigeons and wireless were kept in readiness for use should the main system be cut.

In the earlier stages of the war, full use was not made of wireless. One particularly tragic disaster might have been avoided had this means of communication been available. When General Townshend's force was advancing towards Ctesiphon, an aeroplane, piloted by Major Reilly, was sent on in advance to reconnoitre. He discovered that the Turks had received such considerable reinforcements that the military situation was entirely changed. Before he could turn back with this priceless information, his machine was shot down and General Townshend, in ignorance of what was before him, continued his advance with fatal results. Had Major Reilly's machine been fitted with wireless, and had he been able to send one short message, the

course of the Mesopotamian Campaign might have been entirely changed.[1]

It might be supposed that the possession of wireless telegraphy would immensely help in this matter of communications. It certainly does help, but its inherent property of wide diffusion means also that signals can be intercepted. Hence the necessity of codes difficult enough to defy the enemy decipherer and the resulting delay for decoding before the recipient can understand the message. Furthermore, the ease with which signals can be sparked out into the ether produces at critical times a congestion of business whereby messages of vital importance have to wait their turn for reception with others of practically no urgency.

This delay in urgent messages being held up occurred again and again at Jutland, for instance. One typical example must suffice. An important signal giving information of the enemy, timed 1.48 a.m. at the Admiralty, did not reach the "Iron Duke" till 2.40 a.m., nor the "Lion" till an hour later.

Experience has shown that, wherever use can be made of it, the cable and the telegraph have more likelihood of secrecy than the most elaborated coded wireless message; and in countries where neutral persons of varying nationalities and sympathies are to be found, communications are secret only if *not* sent by wireless.

At sea, no communication to distant ships is as yet possible except by wireless; and such failures as may occur in the transmission of messages are, by the nature of things, chiefly due to the human factor; yet, among many millions of signals made and repeated during the war, the number marred by errors in transmission forms only an infinitesimal proportion of the whole. Where failure of communication had serious results, this was seldom due to faulty apparatus or bad working of the operators, but rather to inability on the part of those at the two ends of the chain to interpret information correctly, or to utilise an admirable machine.

One of the earliest episodes of the late war—the escape of the "Goeben" and "Breslau"—can partly be attributed to the entire absence of communication between the British and French forces in the Mediterranean. Neither seemed to know, or very much to care, what the other was doing; and though to Admiral Souchon at Messina it seemed that he was like a lame rat in a drain pipe, he found when he limped out that all the terriers were engaged each in their own affairs, and he was allowed to reach safety practically unmolested.

Communications between the Admiralty and the British Commander-in-Chief, on the other hand, were all too good, in that the latter was receiving explicit orders from a source where the situation was not fully appreciated. The effect of all this was attended with disastrous consequences. Lack of communications and the abuse of them resulted

[1] See Brig.-Gen. F. J. Moberly, "The Campaign in Mesopotamia," II., p. 61.

in the escape of these two ships. But for this, there might have been no Dardanelles campaign, no Treaty of Lausanne, and possibly no Russian Revolution.

The action in Heligoland Bight, though decidedly to our advantage both in the losses it inflicted on the Germans and the effect it had on their future strategy, might, through faulty communications, have had a very different result. The British submarine and destroyer flotilla Commodores did not know that cruisers were coming from the Grand Fleet, and the cruisers did not know the positions of our submarines. Consequently, the submarines tried to torpedo the cruisers and the cruisers to ram the submarines. Luckily, neither attempt succeeded. Moreover, the battle cruisers, whose signal staff seems throughout the war to have been dogged by persistent ill-luck, failed to get an order for alteration of course through to their attendant light cruisers, with the result that these were thrown out for the rest of the day.

In view of the elaborate organisation for the transmission of intelligence in Home waters, it comes as a shock to find that, owing to a weak spot in the system, a squadron of British capital ships was allowed to manœuvre in waters where mines had revealed their presence by blowing up a merchant ship the previous day. Indeed, it was not till after the "Audacious" had struck one of these mines that the Commander-in-Chief received by signal the information which would undoubtedly have saved the battleship had it reached him earlier.

Abroad, it is not wonderful that the communication of intelligence was occasionally slow. One example will suffice. The "Dresden" had been 36 hours at Punta Arenas before the squadron hunting her knew that she was there. They arrived only to find the bird flown. The search which then followed was drawn out for three months by the failure of a message to reach the Admiralty, who, in its absence, gave undue weight to a piece of false intelligence.

The most tragic failure of communications throughout the naval part of the war, however, was that which occurred the night after the Battle of Jutland. Admiral Jellicoe had been forced to break off pursuit of the enemy owing to darkness closing in, but he had manœuvred the Grand Fleet so that it barred the line of retreat back to the German bases. During the night, Admiral Scheer charged through the destroyers massed astern of our battle fleet; ship after ship sighted the German battle fleet as it forced a passage home, yet no word reached the British Commander-in-Chief or any one of his Flag Officers. At daylight the next morning they believed the enemy to be to the Westward and looked forward to resuming the action. Too late, news was received that Scheer was already to the Eastward, and fast approaching the shelter of German waters.

This failure was in the first place due to lack of initiative on the part of certain ships which had their visual signalling apparatus intact, but which would not use it for fear of disclosing their position to enemy torpedo craft. In other cases the ships were so battered by their

sudden contact with the enemy that they had no means of communicating. But one flotilla leader made repeated attempts to send a wireless message giving the vital piece of news which might have led to the action being fought to a finish; for some unknown reason, however, the messages failed to get through.

A closer study than has been attempted here of this matter of communications—or rather of the utilisation of the existing machinery—cannot fail to bring to light innumerable other instances emphasising what has been written above; but enough has been said to show that many of the operations in the war were less successful than they might have been, and some disasters might have been avoided, if communications had been organised and utilised as efficiently as the machine was operated.

MARITIME LAW AND ECONOMIC PRESSURE.

By W. E. ARNOLD-FORSTER, Esq.

On Wednesday, 11th March, 1925, at 3 p.m.

VICE-ADMIRAL SIR WILLIAM GOODENOUGH, K.C.B., M.V.O.,
Commander-in-Chief at the Nore, in the Chair.

THE CHAIRMAN: Ladies and Gentlemen, Mr. Arnold-Forster, who is going to lecture to us this afternoon on Maritime Law and Economic Pressure, fortunately for us has not only studied the question deeply but has had an opportunity during the war of seeing its application, which is a combination which does not come to everybody. I confess that I do not know much about either subject myself, and therefore I am as anxious as I am sure you are to learn about them. I will now call upon Mr. Arnold-Forster to deliver his lecture.

LECTURE.

SIR WILLIAM GOODENOUGH, Ladies and Gentlemen. The relation of maritime law to economic pressure concerns no country so vitally as our own, and no audience more directly than the members of this great Service Institution. So I am deeply sensible of the honour of being invited to speak here on this subject. I only wish I could do so with adequate knowledge of maritime law in general, instead of merely from experience of the effect of certain maritime laws in the late war.

I propose to speak:—

(*a*) first of the *effect of maritime law in the late war* on our weapon of economic pressure;

(*b*) and then of the *present legal position.*

I. MARITIME LAW IN THE LATE WAR.

The object of our economic pressure in the war came to be nothing less than the complete prevention of an enemy's commerce; and, allowing for obvious geographical limitations, we did eventually achieve this object. But it was an object not recognised as legitimate by the elaborate code of maritime rules under which we entered the war; so that the history of the "blockade" is in large part the story of the breakdown of the original code and the building up of new legal understandings. I am going first to remind you of the successive stages of that breakdown.

Declaration of London.—When the war came, maritime law had been codified, you remember, in the Declaration of London, which this country had signed but had not ratified. Undoubtedly, that Declaration represented in many respects a very important advance, and a considerable part of it can, I believe, still be accepted as a declaration of existing understandings of international law; but if you can bring yourself to re-read it now, you will feel, I am sure (whatever you may have felt 11 years ago), that in some respects, especially as to contraband and blockade, it was based on the shakiest of foundations. And it has to be admitted that for some of the least solid of those foundations we were ourselves responsible. In 1907, when Sir Edward Grey was giving instructions to the British Delegates to The Hague Conference, the Admiralty's official view was that *close blockade* such as we had used at Toulon, not what is loosely called *long-distance blockade* such as we afterwards used in the North Sea, was the offensive weapon we might expect to rely on. So our delegates went to The Hague with instructions that, if the rules of close blockade could be fully safeguarded and certain concessions obtained, we could accept total abolition of the rules of contraband. The required conditions were not fulfilled and so contraband rights survived, but only in such a mutilated form as to have lost most of their value for purposes of offence.

Then the Declaration of London was drawn up and signed; then furiously debated; and then the war came. You remember the irony of the sequel: how blockade, the weapon we had chosen, lay rusting, almost unused; whilst the other weapon, contraband law, which we had blunted, even offered to discard, we were ourselves the first to re-sharpen. For, at the touch of war, the towering structure of the Declaration began to crumble. Our very first actions showed that we had already rejected the idea of close blockade, which the development of the mine and the submarine had made impracticable; we began by establishing our cordons in the North Sea and the Downs, thus including neutral ports. At the outset, too, we rejected the old practice of conducting search on the high seas; for, as we could show convincingly, search at sea was no longer either effectual or safe.

Order of 20th August, 1914.—And then on 20th August, 1914, we issued the first of the four great Blockade Orders in Council. The Order of 20th August declared that we adopted the Declaration "as if it had been ratified," but subject to certain "additions and modifications"; and two of those modifications were, in fact, of the highest importance. By the one we claimed the right to infer enemy destination from any sufficient evidence, not only from the ship's papers; by the other we claimed the right to stop conditional contraband, even though shipped by way of a neutral port. Thus, in the very act of adopting the Declaration as our guide, we were already reversing some of its cardinal principles. Let me remind you briefly what those principles were, as regards contraband.

Contraband.—In accordance with the old theory of Grotius, com-

modities were divided into three categories—absolute, conditional and non-contraband. Absolute contraband, consisting of goods used only for war purposes, might be seized whenever it could be shown to be destined for the enemy, and at any stage in its voyage. Conditional contraband, consisting of goods that might or might not be used for war purposes, might only be seized if it could be shown to be property of the enemy state, or destined for the enemy forces or a fortified place, and if on its way direct to an enemy port. Non-contraband, comprising all the main raw materials of industry, might never be declared contraband or seized, whatever its destination. In effect, therefore, the Declaration set three main limitations on our treatment of enemy imports as contraband. It debarred us from stopping any goods on the conditional list, such as food, if consigned by way of a neutral port; it debarred us from stopping such goods in any case if destined for the civil population (except in a fortified place), and it debarred us from stopping non-contraband at all. Besides this, it debarred us from stopping enemy exports at all, unless by close blockade.

All these four limitations we eventually rejected. That Order of 20th August set us free from the first, enabling us to stop conditional contraband at any stage in its voyage. Thus we officially accepted at last the contention that critics of the Declaration had long been urging, viz., that this limitation would have discriminated unfairly in favour of the continental, as against the island, Power; and that the simple expedient of writing Rotterdam or Copenhagen on the ships' papers, instead of Hamburg or Lübeck, would have sufficed to frank all the food imports of the enemy forces.

Non-Contraband.—Next came the turn of non-contraband. The agreement that articles on a non-contraband list, including all the chief raw materials of industry, should never be declared contraband or seized, seemed to promise advantage to everyone concerned, especially to ourselves with our pacific policy, our enormous foreign commerce, and our holding of half the world's carrying trade at sea. Yet, as you know, the war shattered this rule like the other. It soon became obvious in war time (even if it had not been obvious in peace time) that commodities such as copper and nickel, rubber and oil, whatever their uses in peace, were in war among the prime necessities and determining factors of the war. A rule which made it legal to stop shells but illegal to stop copper for shell bands, legal to stop army lorries but illegal to stop their motive power, oil, was not likely long to command assent in such a war; however humane its intention, its effect was merely absurd. And so, by 29th October, the date of our second important Order in Council, we had added to the contraband lists such articles as copper, rubber, hides and oil; and we went on adding any articles that seemed to us of military importance just as if the non-contraband list had never existed.

So much for the second entanglement inherited from the contraband rules of the Declaration.

Conditional Contraband "to order."—Before I go on to the third, I must refer to another serious difficulty, not due to the Declaration but created by ourselves in that Order of 29th October.

The Order provided for the seizure of conditional contraband shipped "to order" at a neutral port: for it was recognised that this common commercial practice of leaving the consignee's name to be indicated on arrival would make our discrimination impossible. Unfortunately, the Order drafted—perhaps, too hurriedly—as a concession to American opinion, was so phrased as to leave immune all shipments to *a* named consignee—any named consignee would do—at a neutral port. That at least was how the Order was applied at the time, and as a result enormous quantities—many tens of thousands of tons—of food, believed then, and subsequently known, to be destined for the enemy authorities, were allowed to pass through our hands in the winter of 1914–15; the Prize Court afterwards put a different interpretation on the Order, but by that time the injury had been done. This most damaging Order long hampered the treatment of conditional contraband in the Prize Court, until at last it was rescinded in July, 1916.

Civil and Military Supplies: State and Private Property.—And now for the third of the four limitations I referred to: I mean the distinction between State and private property, and between civil and military supplies. The Declaration assumed that these distinctions could and should be drawn, and declared that food and other articles on the conditional contraband list might only be seized and condemned if shown to be destined for the enemy authorities or armed forces.

Here, again, the test of war soon exposed the fallacy—in this case to both sides. For, in a war between organised modern States, the supposed distinctions are not only impossible to draw; they have actually ceased to exist as real distinctions. The Germans recognised this as soon or sooner than we did. For instance, as early as September, 1914, the "Karlsruhe" sank the Dutch ship "Marie" with a cargo of grain shipped before the outbreak of war to a private firm in Ireland; and the German Prize Court justified the sinking by the plea that even if the State did not take over the grain it might take over the flour made from the grain. Obviously, that argument, for what it is worth, amounts to a claim that already in September, 1914, civil and State supplies were indistinguishable. Already, too, in September, 1914, the German Government, very naturally, was organising the purchase of food and other supplies in the United States for shipment in the guise of private neutral trade. I remember wondering in November, 1914, as I was reading German-American intercepted cables, how soon some enterprising shipper would test the Declaration by addressing a shipment of food quite openly to the civil population at some German port. The test case was not long in coming, for in January we had to deal with the awkward problem of the "Wilhelmina." Her cargo of food was consigned to the civil population of Hamburg, and with an amusing ingenuity her German-American shippers had worked into

the bill of lading every appropriate sentence from the Declaration. So that, if we stopped the cargo, we should be likely to rouse a hornet's nest in the United States; if we let it pass, we should set a precedent destructive of future chances of restricting the food supply of the German Army.

Out of this dilemma we found a fortunate way of escape. We stopped the "Wilhelmina's" cargo as Prize, on the ground (which her papers had been unable to cover) that Hamburg was a base of enemy supplies; and then, with excellent political results, we released it for resale to the Belgian Relief Commission. But this test case had the very important result of making us consider afresh the assumptions on which we had been working. What was the use of trying to discriminate between civil and military supplies when every increase of supplies for the civilian would release equivalent supplies for the soldier from the common stock? And was not the enemy just as much concerned with the supply of the civil war-worker at home as with that of the soldier in the field? Of course he was. For, as Ludendorff wrote, "in this war it was impossible to distinguish where the sphere of the army and navy began and that of the people ended. Army and people were one." Or, as Sir E. Grey put it in his note to the American Government on this "Wilhelmina" case: "The reason for drawing a distinction between foodstuffs intended for the civil population and those for the armed forces or enemy Government disappears when the distinction between the civil population and the armed forces itself disappears." Another event, much more important even than the "Wilhelmina" case, came at the same moment to free our hands. The Germans declared their submarine danger zone around these islands.

Reprisals Order, March, 1915.—And so that tragic race of starvation began. By 11th March, 1915, the date of our great Reprisals Order in Council, all was ready for the stroke which set us free to *prevent the enemy's commerce*. The Order empowered us to *stop*—not necessarily to condemn as prize, but to stop—all goods that we could show to be of enemy origin or destination. Yes, *all* goods, whether liable to condemnation as contraband or not. Here, then, was a breach at last in the old principle that civil and military supplies must always be distinguished. The Reprisals Order did not, it is true, go so far as to sweep away the distinctions of contraband law: the Declaration and the Order of 29th October remained in force and continued to hamper the Prize Court till they were abrogated by the fourth great Blockade Order in July, 1916. But, in effect, the Reprisals Order did cut a way through the third of our entanglements; it did enable us to *stop* all goods we could show to be destined for the enemy, whether for the civil population or not.

The practical value of this innovation has been too little appreciated; indeed, the whole Order has sometimes been curiously misrepresented. It has been suggested that the power to stop all goods destined for the enemy, whether contraband or not, whether for the civil population

or not, was of no practical importance. But the innovation really did two new and valuable things. It made a breach in the principle of free passage for civil supplies in "long-distance blockade"; and it enabled us to stop non-contraband, particularly cotton. Public opinion is still under an illusion about this; for, contrary to what is popularly supposed, we did from that moment begin stopping cotton. When the Order came into force, the cotton crop had begun to pass freely from America direct to Bremen; it was non-contraband and could not, for compelling political reasons—so the Foreign Office decided—be declared contraband at that time. But now, armed with the Order and the Cotton Agreement that went with it, we could act, and we did. During March, April and May, 1915, we stopped, not thousands of bales, but tens of thousands of tons of cotton, for Germany. Not enough, for we had as yet no adequate rationing system, and because a good deal had got through already; but still by far the greater part of the traffic. Five months after the Order, when the Government at last felt free, in view of improved conditions in the United States, to declare cotton contraband —when, in other words, we became able to condemn cotton as prize instead of merely seizing and detaining it—the public heaved a sigh of relief at the news that our recalcitrant Government was at last beginning to move. But the truth was that by that time any addition to the contraband list was of comparatively minor importance; what mattered to the blockade was that months before, when the bulk of the cotton crop was crossing the Atlantic, we had quietly, without any avoidable fuss, laid hold of some quarter of a million bales.

That was the second of the advantages we gained from the Order of 11th March; the third was still more important.

Enemy Exports.—I spoke of the Declaration's four limitations on our treatment of the enemy's commerce; the fourth being that it made no provision for the stoppage of enemy exports in a long-distance blockade. That principle the Reprisals Order introduced; and that it was a principle of very great practical importance no one familiar with the history of the American Civil War or with the effects of our export blockade on Germany's credit is likely to dispute. We found ourselves able to sever Germany's overseas export trade with remarkable completeness; and that was no trifling contribution to the general pressure.

So by this date, March, 1915, a way lay open through the four legal entanglements I spoke of. We had been debarred from stopping conditional contraband save under conditions never likely to arise; debarred from stopping any of the raw materials of industry, whatever their military value; debarred from stopping enemy exports with our long-distance cordon; and compelled to assume a distinction between civil and military supplies that was at once impracticable and unreal. At last now we were free to set about preventing the enemy's commerce.

Remaining Problems.—Then why, why on earth, you will ask, didn't we straightway proceed to prevent it? Why didn't we screw

the blockade tight in 1915, instead of muddling on till two years, or nearly two years, of the war had passed? Those two fatal years.

Well, it is not my business to-day to criticise or defend our blockade administration. But at this point I feel compelled to make some answer to that fundamental question. And I can only say that, for my part, I believe that a heavy indictment can be brought against certain features of our blockade administration in the first half of the war; when every allowance has been made for the very grave diplomatic difficulties—difficulties which were really naval and military, quite as much as political—it is still necessary, I think, to admit that a more scientific direction of our blockade effort in those two years might quite possibly have shortened the war. And yet, when all that has been said, was not the "blockade," after all, an unparalleled example of the successful use of sea-power supported by diplomacy? Was it not in the circumstances a wonderful achievement, from the belligerents' standpoint, to have destroyed the whole of our enemy's overseas commerce and thereby contributed so powerfully to his defeat, without having incurred the hostility of a single one of all the many powerful neutral States affected by our actions? That we made grave mistakes I firmly believe; our enemies made worse ones. But no criticism of our blockade measures can possibly be fair unless this fact is realised: that at the date I was speaking of—March, 1915—the immediate stoppage of all the enemy's imports, even of his imports from overseas, was absolutely impossible with the means we then possessed. Unless one understands fully why that was so, one cannot either form a fair judgment of the blockade, or—what is more to our purpose to-day—form an idea of the limitations imposed by existing law. The two problems which still faced us, even after those legal fetters had been loosed, were of such dominating importance that no account of the blockade could be accepted as reliable if it failed to give them prominence.

I am not referring to the task of maintaining the naval cordon—though that was, of course, the most fundamental of all. Without that ultimate element of force, nearly all our ingenious devices for constraining other people's commerce would have been powerless; and the idea that the success of the blockade was simply a triumph of forces all unarmed has sometimes, I think, been much exaggerated. No, the two problems I mean were these. How were we to *recognise* the enemy's commerce when we met it *outside* the cordon; and how were we to *restrict* it *inside* the cordon?

(A) *Discrimination.*—Take a concrete example of that problem of recognition, discrimination, as it presented itself towards the end of 1915. Some officers here took part, I daresay, in the interception of shipping in the Northern Patrol. They will have hailed, say, the "Bergensfjord," summoned her to stop, had to fire a shot across her bows, and finally they will have brought her into Kirkwall and seen her manifest telegraphed to London—a list of three or four hundred items. And then, after a brief delay, they will have seen the

"Bergensfjord" allowed to proceed on her way; and will, I expect, have heaved the usual, very natural, curse as another great cargo passed untouched through the cordon.

I ask you now to switch your mind's eye from the North Sea to a room in London, to the table at which the "Bergensfjord's" manifest is delivered, along with 6, 10, 15 others arriving during the day from Kirkwall, the Downs, and Falmouth. Consider for a moment how you are going to pick out from among the three hundred items of the "Bergensfjord" telegram those which are really destined for the enemy. The cargo includes, say, 1,700 tons of bacon divided into 170 lots for various consignees in Trondhjem and Stockholm. What are you going to report to the Contraband Committee, an hour hence, about that bacon? What evidence can you produce that will justify them in ordering this great passenger liner to a port of discharge? You have at hand a large room filled with nothing but the index to the names of neutral traders; you have already an unparalleled store of intercepted letters, cables and radios, each with its cross-references. In short, you are, or soon will be, able to draw upon the most extensive and perfect intelligence system of the kind ever made. And yet, in all that vast repertory, not one word can you discover about any one of the 170 consignees of bacon. The telephone directory is a little more helpful: it tells you that Mr. A. Anderson of Trondhjem, consignee of 10 tons, keeps a boarding house; that Mr. B. Christensen of Stockholm, consignee of 20 tons, makes musical instruments. And so on; some of these straw-people are, in fact, dock labourers and lightermen on Malmö quay.

Well, the officer in London, like the officer in the North Sea, jumps to the conclusion that this bacon cannot possibly be required for neutral consumption: it comes on top of a long succession of shipments enormously in excess of the requirements of the Scandinavian countries. And *that conclusion is perfectly correct;* the market that the shippers are thinking of is, of course, the German market. But what is the Contraband Committee to do? I ask you, what can it do about this bacon intended for Germany? Can it send the lot to the Prize Court? No. For the Prize Court can only accept the seizure as justifiable if it is supported by *specific evidence of enemy destination;* and not a word of specific evidence have you been able to bring forward, nothing even that might blacken the past of Mr. Anderson or Mr. Christensen.

Then should the Committee obtain special guarantees against re-export? Well, in fact, it does that; and guarantees are very nice, no doubt. But even if every man, woman and child in Trondhjem were surfeited with bacon, there would still be a surplus to get rid of. If you were the musical instrument maker in Stockholm with 20 tons of bacon at your doorstep, wouldn't you cheerfully guarantee that, so far as you were concerned, the bacon would not be exported? The other man would do the exporting; you would simply pocket your commission.

Then, what about prohibitions imposed by the Scandinavian Governments against all exports of particular commodities from their respective countries? Such prohibitions certainly offered more hope, but only if all three Scandinavian Governments had imposed and were maintaining them without exemptions. But even if the Swedish Government, say, could be induced to prohibit exports of bacon in good time, how could they dispose of this pile of bacon never meant for Swedish use? They could either let it rot or exempt it from the prohibition; and they did not always let it rot.

So there remained only one other expedient, the method of *rationing*. By computing the normal imports of each commodity, and then contriving to restrict imports to those normal figures, we were able throughout the latter part of the war at once to eliminate practically the whole of the enemy's imports from overseas, to dispense with the clumsy instrument of the Prize Court, and to assure the free passage of normal imports to the neutrals.

You will ask why a principle so simple and so clearly equitable alike for the blockader and the neutral should have had to wait till 1916 before being thoroughly applied? I indicated the answer just now: the law offered us no adequate means of enforcing it. Not that the rationing principle was incompatible with the law; far from it. But the Prize Court would not accept statistical evidence *alone*, unsupported by specific evidence, as sufficient to justify the presumption of enemy destination. It could accept statistics as relevant, as a most important contribution, even as affording a *prima facie* case sufficient to acquit the Crown from having to pay damages for wrongful detention. But further it could not go.

So the Prize Court could only help us up to a very limited degree. Beyond that point, we had to devise new means to help ourselves. And that we did. By our rationing agreements with the importing neutrals; by our agreements with producers such as the American exporters of copper, cotton and meat; by our agreements with shipping lines and by coal control; and, above all, by the admirable system of obtaining bookings of proposed cargo in advance of shipment, we eventually succeeded in circumventing the legal difficulty in most cases. But we were still unable to secure a system of advance bookings in South America, or in the Far East; so, in the spring of 1916, we found ourselves powerless to check the enormous shipments of coffée from Brazil to Scandinavia except by the expedient politely called "forcible rationing." That broke the abnormal traffic; and soon afterwards we were able to begin making rationing agreements as regards coffee with the neutrals concerned. But it must be recognised that this forcible rationing, the curtailment on purely statistical grounds of these neutral imports, destined as they were almost wholly for our enemies, was without any adequate legal sanction; and the development of this method into a system of formal "embargoes" on neutral imports from neutral sources, imposed for statistical and occasionally for purely

political reasons, is likely, I think, to be challenged on legal grounds by any dispassionate legal historian.

"*Produits similaires.*"—So it was extremely difficult to find legitimate means of controlling even those neutral imports which were intended for direct re-export to the enemy; naturally, it was even harder to control those which would release *similar* products for export to the enemy. It might be easy to show—as, indeed, we did show—that Sweden's abnormal exports of butter to Germany were only made possible by her equivalent imports of margarine material; but the Privy Council ruled, late in the war, that that did not justify us in stopping the margarine. Still less should we have been justified in seizing neutral imports of fodder and fertilizers; for the best argument we could have adduced would have been that the fertilizer might increase the neutrals crop that might go in part to fatten the livestock that might in part be exported to the enemy or whose produce might in part be so exported; and that is a sequence of reasoning less suited to a legal judgment than to a story of that House that Jack built.

This fundamental legal difficulty was, of course, one of the main reasons for our deliberately allowing abnormal and unchecked imports of fodder into Holland and Denmark during the whole of the earlier part of the war. Whether this policy could and should have been avoided I must not stop to discuss; I will only point out that its consequences were unfortunate, from the standpoint of the blockade. By enabling these great food factories on the enemy's frontier to increase their productivity, we naturally aggravated our own problem; and it was only when, at last, with America on our side, we reversed this policy and set about reducing the Dutch and Danish production, that we were really successful in restricting the enemy's share.

(B) *Restricting the Enemy's Supplies.*—That brings me to the second of the two main problems I referred to as still outstanding after the Order of March, 1915. Besides having to identify enemy trade when we found it outside the cordon, we had to restrict it inside the cordon. But the story of our elaborate and costly arrangements for restricting supplies of Norwegian fish, Dutch and Danish produce, Roumanian oil, and so on, needs no telling now, since it involved no question of maritime law, save the one I have just spoken of in regard to the treatment of fodder.

CONCLUSIONS.—PART I.—We have now traced the stages of the breakdown of the Declaration of London, and seen how we set ourselves free to prevent the enemy's commerce wherever our cordons could touch it; we have seen, too, how even after all this we had still to find means to circumvent fundamental legal difficulties, notably the lack of adequate legal sanction for the application of the only scientific method of controlling neutral imports, the statistical method. And now, before I go on to the brief second part of my paper, let me summarise the conclusions that may, I think, be drawn from this first

part. They must, of course, be confined to the broadest generalisations if they are to stand even the least chance of proving applicable to the unforeseeable contingencies of another war. I suggest :—

1. *Maritime Law.*—That whilst it may be feasible to codify existing understandings of maritime laws of war, it is most difficult, probably impossible, to devise in advance an elaborately detailed rigid code that will stand the incalculable strains of another great war.

2. *Economic Pressure.*

(a) *Rights of the Blockaded Power.*—That it is more difficult than was formerly supposed, probably futile, to try chopping the economic weapon in half; to trace an arbitrary line across its blade, saying this half is legal but that illegal.

Its ultimate object may be to prevent the enemy's commerce.

(b) *Neutral Rights.*—That it is difficult, probably impossible, to make such a weapon fully effective against a continental State without seriously curtailing the discretion of contiguous neutral States, *e.g.*, by application of quantitative tests to their imports.

In short, the weapon now appears to be less amenable to law, less discriminating, and more dangerous, than was formerly supposed; the attempt to make it more humane by legal rules is likely to make it correspondingly ineffectual. And now, in the second part of my paper, I will briefly show what deduction the world seems to be drawing from that conclusion, and what changes are therefore being made in the relations of maritime law to economic pressure.

II. The Present Position of Economic Pressure in Maritime Law.

The Strengthening of International Law.—Forty years ago, in the preface to his "International Law," Professor Hall wrote: "If the next war is unscrupulously waged, it will also be followed by a reaction towards the strengthening of law." Well, the next war was in some respects "unscrupulously waged"; we have been seeing how it brought down in ruins the last elaborated code of maritime law, and those ruins are still lying about us now, a warning to such code-builders. Yet it would be a great mistake to suppose that the cause of law itself has suffered lasting injury; on the contrary, Hall's prophecy is proving perfectly right, though in a way he can hardly have anticipated. For in no equal period has there ever before been so extensive and so solidly secured an advance along the whole front of international law as in the few years following the signature of the Covenant of the League of Nations, and the establishment of the World Court of International Justice. For evidence of the growth in the legal organisation of peace, you have only to open at random any monthly report of the League's work, or an appendix of the British Year Book of International Law. Every month the law that orders the peaceful relations of the Society of Nations is being extended. At the moment, we are only concerned

with law as it affects maritime rights in war; and here, too, there has been an immense advance, a change that has already profoundly modified the naval as well as the legal outlook as regards economic pressure.

The League Covenant.—The momentous changes brought about by the Covenant of the League unquestionably correspond with an immense change in public opinion, with a growing conviction that "private" war is an intolerable outrage, open to precisely the same objection as private murder; that blockade, amongst other weapons, is far too deadly and undiscriminating a force to be left in any private hands. It is no mere accident that both the abortive Draft Treaty of 1923 and the Protocol of 1924 begin with a declaration that aggressive war is "an international crime." That is not mere sentimental Utopianism; it expresses the world's deepest conscience and a belief, a reasoned belief, that relations between nations, like those between individuals, not only should be but can be made amenable to law.

It is not my business, of course, to defend or criticise the Covenant or the Protocol. I am only going to show how the great changes involved are precisely in accordance with the conclusions I have already put before you.

Surrender of the Right of Private War.—In the first place, the Covenant goes a long way, you remember, towards the abandonment of the right of private war. In common with the 54 other signatories—including all the great nations of the world but three—we are absolutely pledged to submit all genuinely international disputes to arbitration or conciliation; we are absolutely pledged, too, to accept an award in all but a few cases, the chief exception being when the Council fails to reach unanimity about a dispute submitted to it for conciliation. So we have already definitely abandoned the right of private war in many contingencies, but not all; if the principles of the Protocol are accepted, then the gaps in the Covenant will be closed, and we shall be committed to the acceptance of an award, and to certain measures in support of such awards, in all international disputes. The right of private war will be ruled out as between the signatories.

And for my part, I must say, I rejoice that our country, with the great naval force it holds in trust, has already gone as far in this direction as the Covenant. I hope we shall go further and accept the extension of this principle in the Protocol. For truly civilised international relations can hardly begin so long as the nations maintain the barbarous claim to be at once plaintiff in their quarrels and judge and executioner.

Acceptance of the Obligation to Co-operate in League Sanctions.—We have not only gone far towards the abandonment of the right to make war privately; we have also gone far towards acceptance of the obligation to make war, or rather to apply compulsion, communally. For, we have accepted the League's claim to use economic pressure if necessary

for the enforcement of its Covenant; together with the other members, we have accepted the obligation to co-operate in that pressure for the common purpose. The contribution of naval and military force can only be *recommended* to us by the League Council (on which we are permanently represented); but co-operation in the economic pressure is a binding *obligation*, which we accepted when we ratified the Covenant. Co-operation is obligatory; and it is *unlimited;* for it is defined in Article XVI. as involving the severance of all personal, financial and commercial relations both between the offending State and ourselves and between the offender and other States, whether members of the League or not.

In a word, Article XVI. contemplates the complete suspension of the offender's commerce; it attempts no reservations, but implies for the League precisely such a claim as the Allies were making in 1918, or such as President Wilson presumably intended when he said in his Fourteen Points that the seas should only be closed in time of war "by international agreement for the enforcement of international covenants." And that claim the League's 55 members have now deliberately conceded to the League.

To the League; but not to any private belligerent. That is my point. Any wide claims for the private belligerent would nowadays, I feel certain, be far more strenuously resisted than ever before; if only for the simple reason that never before has the world had such good cause to dread the economic weapon. We claimed in the war that the attempt to cut the weapon in half was futile; and we proved for all the world to see that it could bring great nations to their knees, hitting non-combatants at least as hardly as combatants, and horribly killing its hundreds of thousands. Very well. The world has learnt that lesson; it has resolved that if anyone is to use a weapon so deadly and undiscriminating, he shall do so not simply for his own ends, but in the capacity of a special constable, an authorised agent of the community.

Now, I can come to the difficult and crucially important question: What is the legal position of maritime law likely to be in the new conditions I have been describing?

I. Economic Pressure in a League War.

In a case of coercion by the League, three classes of interests would be involved: those of the League members co-operating; those of the offending state or states; and those of neutrals, if any. Consider the legal position of each of those three parties.

(a) *Rights of League Members Co-operating.*—For League members whether coercing or coerced, the legal position is broadly defined by Article XVI. of the Covenant. They have formally accepted the Article and what it implies, and for them, *in a League blockade*, it has all the force of international law. The coercing States would find in it their

justification for complete suspension, if necessary, of the defaulter's commerce; and they could, consequently, claim the right to stop all goods of enemy destination or origin, irrespective of their character, at any stage in their voyage, and also wide rights as to transfer of flag, visit and search, and so forth. In all this they would be fortified by Allied precedents in the war; but it must be remembered that many of those precedents were only defended at the time as being justifiable acts of *reprisal*. The League's claim has the much more solid justification afforded by Article XVI. So long as the members could make their co-operation loyal and effective without having to go beyond the limits of their own jurisdiction, they might, for their part, avoid creating a state of war with the defaulter; but if they had to go further and forcibly interfere with non-members' commerce, then I think they would have to declare war. For the rights of so-called "pacific blockade," at least as recognised at present, certainly would not justify any such interference.

The League's pressure would probably be graduated in its application, if that is feasible. This was a principle approved by the Second Assembly in 1921.

It would probably be directed towards suspension of the offender's commerce rather than its destruction; the object being, not to cause as much lasting injury as possible, but to bring the offender back into the way of reason. I hope and expect that the League will develop the principle of detention of cargoes rather than their confiscation, which first found a place in our Order of March, 1915.

But, lastly, the League's pressure might have, as I said, to be used for *complete* suspension. The Second Assembly accepted the principle that stoppage of food for the civil population should be regarded as an extremely drastic measure, only to be adopted in the very last resort, if all other expedients have failed. But, as I have tried to show, a proposition so formulated, however humane in intention, cannot safely be relied on; there is something to be said for stopping no food, something to be said for stopping all, but there is nothing to be said for pretending that the soldiers' food is distinguishable from the civilians.

(b) *Rights of the Defaulter.*—As for the rights of the defaulter, none are explicitly reserved to him by Article XVI.; but, of course, all the customary concessions of humanity, such as the passage of hospital supplies, would be allowed by act of grace, if not by established convention; the Second Assembly expressly declared that humanitarian relations should be maintained. Probably, in course of time, we shall see the defaulter's rights becoming more clearly defined, not in any hard and fast written code, but in those gradual crystallisations of the "understandings of international law."

(c) *Rights of Neutrals.*—There remains the position of neutrals the States still unbound by the Covenant and free to challenge the legal status of Article XVI. The preamble to the Covenant declares one of the objects of the League to be to secure respect for the "understandings of international law." Signatories of the Covenant

cannot reasonably claim that Article XVI. is inconsistent with those "understandings," but non-signatories are free to do so, and very possibly will. The United States has never, I believe, accepted the legality of many of our blockade measures in the war, though she eventually supported them more or less directly with her co-operation, and if we re-imposed those measures to-morrow on our own account the American challenge would almost certainly be no less than it was in 1915. But if we were acting simply as agents of the League, our position would be very different. We should have far more support and far fewer neutrals to consider than when we forcibly restrained American commerce in 1914; and in a cause that by hypothesis had recommended itself to so many States, and in which the United States had been specially invited to co-operate, we might reasonably hope for a very different, a much more sympathetic attitude, on the part of America.

II. Economic Pressure in a Private War.

I have been speaking only of economic pressure by the League; but, of course, the contingency of a private war by non-members, or a "permitted" war by members, of the League, cannot yet be excluded: the Covenant contemplates the possibility of a war by League members in which the League is not concerned. In that case we should again be faced with the old unresolved conflict between neutral and belligerent demands, and would have to make the best use we could of the now chaotic understandings of international maritime law. Before that time, which I hope will not come sooner than the Greek Kalends, another attempt at codification may have been made. But so long as two contingencies, a communal or a private war, have to be considered, for so long the task of the jurist and of everyone else concerned will remain extremely complicated, since every problem will have to be considered from two standpoints. The tendency will, I hope, be to secure the widest discretion for the League, but to make private economic pressure more and more difficult; powers tolerable in a policeman would be insupportable in a mere highwayman fighting for his own hand.

Conclusion.

So, Ladies and Gentlemen, I conclude that it is better to prevent war or economic pressure than to seek to humanise it; that it is better to press on towards a League of all Nations when there will be either no belligerency or else, in effect, no neutrality, than to spend our labour in renewed attempts to reconcile the old irreconcilable conflict between belligerent and neutral interests; and that it is better, in this dwindling and disfrontiered world, to complete the surrender of the right of private war than to preserve the unsocial, unregulated freedom to fight, which is anarchy. The world's best hope of mastering this fearful weapon of economic pressure is thus to begin by making it a servant of the public law.

DISCUSSION.

Mr. F. LEVERTON HARRIS: It has always struck me that the blockade during the last war may be divided into two distinct parts. We started off with the Declaration of London, to which many of us were very vitally opposed. But we have always got to remember that in the framing of the Declaration of London it was prominently put before our negotiators that England was more likely to be a neutral in a future war than she was likely to be a belligerent. Also it was the prevalent idea at the Admiralty that if blockades took place they would be blockades of a small radius. Nobody ever conceived that there would be a great cordon stretched across the North Sea. Close blockade was the idea held, and so the Declaration of London was framed on the basis of a close blockade.

We started off without any preparation for a blockade. There was nothing co-ordinated at all so that the blockade could be brought to bear and the full powers applied which ought to have been applied in the early stages of the war. For more than a year we muddled along with "Orders in Council," breaking down every code and canon of international law, and with those who were in the Fleet in the North Sea crying out in despair at the inadequacy of what we were doing at home. Very few people realise in dealing with neutrals how enormously the Allies had to depend on other countries for some product which was practically vital to them. I have heard lots of people say: "Why did not we go to war with Holland for sending their produce into Germany? Why did not we seize the Dutch East Indies? Why did not we bring Sweden or Denmark or Switzerland or other countries which were trading with Germany into the war?" There were very practical reasons why we should not do so. Let us take the case of Holland. We were almost to the end of the war obtaining two-thirds of all the margarine that was being used in this country from Holland. Not only margarine but practically the whole of the quinine for all the Allies was coming from the Dutch Indies, and there was a moment when we were bringing great pressure to bear on Holland when Holland cut off our supplies of quinine. We were absolutely in the grip of Holland; and if she had chosen to exercise the power she had over us, if she said: "You are overriding all the recognised laws that concern the treatment of neutrals, we will bring great pressure equally to bear on you"—she had the power to do so. It was exactly the same with the other nations. At the beginning of the war, and until Russia fell out of the war, the whole of the military supplies that were going to Russia during the winter (she could not get supplies through the Black Sea, and the Baltic and Archangel were closed) had to go across Sweden. Besides we were drawing from Sweden one of the most essential articles that we had to have in this country, namely, tool steel, which enabled us to run the lathes in this country at double the speed they can run with ordinary steel. The whole of the ball bearings for our aeroplanes came from Sweden. France, too, was getting a very large quantity of her explosives from Norway, while we obtained a very large proportion of our fuses and condensed milk from Switzerland. So that the Allies found themselves in the position of being dependent on all these countries surrounding Germany for some vital product. Therefore any action that we took in respect of those countries, diverting or restricting their trade, had to be taken with the very greatest care. I always regard the turning point of the blockade to be the appointment of Lord Robert Cecil as Minister of Blockade. The whole of the blockade policy was then co-ordinated under one head and steady pressure brought to bear on the enemy and neutrals alike. Another point I would like to refer to is the wonderful power of negotiation that we had in our coal. We brought practically every neutral

shipping line in the world under our domination, largely through our power to control the supply of coal at foreign coaling stations. In that way we were able to dictate to those neutral shipping lines which goods they might or might not carry.

So far as the future is concerned, I cannot see at all clearly what may happen should there be another great European war. In these days I do not believe myself that we shall ever be able to frame again a code of International Law which will cover the actions of nations in war and whilst I strongly approve of all genuine attempts to stop or limit wars by action taken by the League of Nations, still we must not forget that we may have to rely on our fleet and our army, and, so far as economic pressure is concerned, on getting those who sympathise with us to work with us against those who do not sympathise with us. I think we should not be led away by too hopeful views so as to weaken our arms. We have had to depend on our fleet in the past, and, as far as I can see, we may have to depend upon it again in the future.

COMMANDER DANCKWERTS, R.N.: I am largely in agreement with the views that have been expressed by the last speaker. I cannot believe that we have finished for a very long time to come with what Mr. Arnold-Forster called "Private Wars," and that being so, as there is likely to be war in the future, I suggest it is of the highest importance, from the belligerent point of view, to retain every power we possess to bring pressure to bear on our enemies. Mr. Arnold-Forster himself has said that had we been able to bring that pressure to bear in 1915 which we subsequently developed in 1917–18 it would have shortened the war very considerably, and I think that is perfectly true. I think it is essential that we should have the power of bringing that pressure to bear in the future, so that if ever there is another war—as there will be—we shall be able to shorten it and end it as quickly as possible. I think Mr. Arnold-Forster will agree with me in this remark at least, that the shorter the future war is the better. For that reason I would like to add one conclusion to Mr. Arnold-Forster's list of three conclusions in regard to the last war, with which I entirely agree as they are stated in the summary of the paper. I would like to add what I would call the Rights of the Belligerent. I believe that if we enter into elaborate codes or written agreements which in any of their parts tend to restrict unduly the full belligerent rights of nations at war, it will be difficult, if not impossible, to avoid breaking those agreements when we eventually do go to war. For that reason I suggest it would be dangerous ever to enter into agreements containing anything more than the very broadest expression of the principles of the rights of the belligerents.

MR. ARNOLD-FORSTER, in reply: With regard to the diplomatic difficulties which Mr. Harris referred to, I think it is important to bring out that our diplomatic difficulties in the blockade were in most cases essentially naval and military difficulties too.

With regard to the point raised as to the impossibility of devising rigid codes which would stand the test of a great war, that, as you know, is one of the conclusions I put before you: I entirely agree with what Commander Danckwerts said in regard to that, but I think we ought to devote our energies, not to the devising of rules of maritime war, but to devising methods of preventing war. and organising the peace. The abolition of the right of private war is not simply an ideal, not simply a conception for the future: it is an obligation that we have already in part undertaken by Treaty, together with 54 other nations of the world. If you are right in feeling that there is no chance in

the future to complete the process which we have already begun, then I can only say, for my part, that I see very little hope of the survival of the civilisation that we know. I think it will be smashed inevitably unless we can do away with this anarchic right of private war. We have done away with the right of the anarchic civilian to take the law into his own hands; I believe we shall do so among the nations. But whether that point is conceded or not, at any rate I hope that the first part of my paper, if the second part does not commend itself to you, will be worthy of your consideration just as a history of the subject, since it brings out at least the point that the elaborate and detailed rigid code is not likely to survive the unforeseeable strains which will be put upon it. Thank you very much.

THE CHAIRMAN (VICE-ADMIRAL SIR WILLIAM GOODENOUGH, K.C.B., M.V.O.): Ladies and Gentlemen,—There can be no doubt about one thing, and that is that we who have listened to the lecture to-day are very much to be congratulated, for, speaking in no terms of exaggeration at all, Mr. Arnold-Forster has made into a very live thing a subject which when one read it on the notice-board one might have felt dealt only with very dry bones. I do not mind confessing that, being a busy man, I had looked forward to the lecture this afternoon with a spirit of, "Well, I wonder!" I have been intensely interested by every word which has been said, and I congratulate Mr. Arnold-Forster very warmly on his lecture. There is one point which, as it is my duty as Chairman to sum up, I would like to bring out. There is no doubt about it that what is required in the event of the lamentable catastrophe of another war is that the rules must be simplified for those who have to apply them practically. You can all imagine the difficulty of a Naval Officer in the North Sea, or further north than that, in the middle of winter trying to decide a point of law on the bridge of a small sloop. There are one or two things which Mr. Arnold-Forster said to which I should like to refer. One thing he said was, "War makes nonsense of many things." In that I entirely agree with the gentlemen who have spoken in regard to the necessity of laws, and that kind of thing, being clarified so that they will stand the test of war. But whatever happens, if we are to have a war, do not let us have a humane war, for that is the most terrible thing of all. It is as bad as the humane Generals that one used to hear about; they lost more lives than anybody else. As to whether this country, or any other country, has learned the lesson, as Mr. Arnold-Forster said, not to have wars in the future, I wish I could be as optimistic as he is. It does not look much like it at present. Even that most violent of men, the professional pacifist, is not helping much towards peace. I will not touch on the question of the League of Nations because time does not permit of it, but I confess it does seem to me that if force is to be used at all to insist on what nations wish carried out, I would sooner trust to countries deciding for themselves what is required in most things. That is only the baldest way of putting it.

There is one other thing, however, in regard to which I am sure we are all agreed, and that is in offering a most hearty vote of thanks to our lecturer for his lecture this afternoon, and at the same time in conveying to him an expression of admiration for the way in which he has tackled the subject and the fearlessness with which he has put forward his ideas.

The resolution of thanks was carried by acclamation.

REAR-ADMIRAL BERNARD proposed a vote of thanks to the Chairman, which was carried by acclamation, and the meeting then terminated.

BRITISH OBJECTIONS TO THE PROTOCOL.

(From "The Times" of 13th March 1925.)

Mr. Chamberlain fully stated the objections of the British Government to the Geneva Protocol in his speech at the Council of the League of Nations at Geneva yesterday. At the outset he explained that it was unnecessary to lay stress upon the sympathy felt throughout the British Empire with any effort to improve the international machinery for maintaining the peace of the world. Successive Administrations in Great Britain, with the full approval of the self-governing Dominions, had not only favoured arbitration in theory but they had largely availed themselves of it in practice. If, therefore, the British Government, after discussing the subject with the British Dominions and India, saw insuperable objections to ratifying the Protocol in its present shape, it was not because they felt themselves out of harmony with the purpose which it was intended to serve, but because they could not believe that the Protocol as it stood provided the most suitable method of attempting that task.

The declared object of the Protocol was to facilitate disarmament, and it proposed to attain this end (1) by closing certain gaps in the scheme originally laid down in the Covenant for peaceably settling international disputes, and (2) by sharpening the "sanctions," especially the economic "sanctions," by which aggression was to be discouraged and aggressors coerced. It was, of course, well known to the framers of the Covenant that international differences might take a form for which their peace-preserving machinery provided no specific remedy, nor could they have doubted this defect could in theory be cured by insisting that every dispute should be submitted to arbitration. If, therefore, they rejected that simple method it was because presumably they felt, as many of the States Members of the League had felt since, that the objections to universal and compulsory arbitration might easily outweigh its theoretical advantages. Into this branch of the controversy the British Government did not propose to enter. It sufficed him to say that so far from their objections to compulsory arbitration being diminished by the Protocol, they had rather been increased, owing to the weakening of those reservations in Clause 15 of the Covenant, which were designed to prevent any interference by the League in matters of domestic jurisdiction.

The British Government were more immediately concerned to inquire how the changes effected by the Protocol were likely to increase the responsibilities already undertaken by the Members of the League. The framers of the Protocol regarded themselves as the authors of a new system through which alone could be realised the great ideal to which humanity aspired. The last thing they contemplated was the possibility that their proposals would leave things very much as they stood under the Covenant. In this the British Government were entirely of their opinion. How, indeed, he asked, could it be otherwise? Fresh classes of disputes were to be decided by the League, fresh occasions for the application of coercive measures followed, and it was therefore not surprising that the question of sanctions should be treated at length in the Clauses of the Protocol.

Mr. Chamberlain recalled that the League of Nations was not the League designed by the framers of the Covenant. They did not foresee that the United States would not be a member. Surely it was most unwise to add to the

liabilities already incurred without taking stock of the degree to which the machinery of the Covenant had been already weakened by the non-membership of certain great States, for, in truth, the change, especially as regarded the economic sanctions, amounted to a transformation.

Economic Pressure.—The economic sanction, if simultaneously directed by all the world against a State which was not in itself economically self-sufficing, would be a weapon of incalculable power. But this was changed by the existence of powerful economic communities outside the limits of the League. It might force trade into unaccustomed channels, but it could hardly stop it, and, though the offending State would no doubt suffer, there was no presumption that it would be crushed or even that it would suffer most.

Preparations for War.—Articles 7 and 8 of the Protocol were designed for the purpose of preventing a State which had a difference with a neighbour from making any preparations for war between the moment when a dispute arose and the moment when proceedings for a specific settlement had been concluded. These articles might embarrass the victim of aggression even more than the aggressor. The aggressor was at liberty to select his own date for picking a quarrel. Until that date arrived he might distribute his army as he pleased and when the distribution was favourable he started the dispute. The troops, on the other hand, of his prospective victim were by supposition in the wrong position for defence. But there they must be kept or the victim might find himself charged with a breach of the Protocol. Was that, he asked, a tolerable situation?

Those were some of the difficulties suggested by Articles 7 and 8 of the Protocol as they affected forces on land. But those articles raised even more embarrassing problems when applied to the case of forces at sea.

Immobilizing the Fleet.—The whole value of a fleet depended on its mobility. Its distribution was in all probability quite different in time of peace from what it would be under stress of war. To suggest that directly a dispute arose which in any way concerned a maritime Power its ships were to remain immovably fixed on the stations where the chance conveniences of peace might happen to have placed them, was asking the threatened State to make a surrender of its right of self-defence, to which it was never likely to submit. It might be added that besides the obvious objections to the clauses which he had indicated, their great obscurity and the inherent impossibility of distinguishing in any paper definition military movements genuinely intended for defence from movements with some ulterior aggressive purpose must always make them a danger to the unwary rather than a protection to the innocent. They could never be accepted as they stood.

Cost of Aggression.—There was another clause of the Protocol, namely, clause 15, which could not be passed over in silence. This contained provisions that the aggressive State was required to pay all the costs of the war for which it was responsible and was protected from any alteration of its frontiers and all interference with its internal affairs. With the sentiments which had dictated those two provisions there would be general sympathy, but the British Government could not think it wise to embody those generalities in dogmas of inflexible rigidity designed to control the actions of the League in all circumstances and for all time. Furthermore, was it impossible that in a war arising out of some very complicated situation, involving perhaps a State not a member of the League, the guilt of the combatants might be fairly matched, though only one of them was technically the aggressor? In such circumstances would the League feel

no misgivings when they found themselves compelled to throw all the cost of the war upon one party and none at all upon the other? Under the second half of the clause the aggressor was protected, whatever his misdeeds, from losing anything but money or the equivalent of money. Was that, asked Mr. Chamberlain, quite satisfactory?

Altering the Spirit of the League.—The Protocol, he continued, purported to be little more than a completion of the work begun by the authors of the Covenant. Surely that was a very inadequate description of its effects. The additions which it made to the original document destroyed its balance and altered its spirit. The fresh emphasis laid upon Sanctions, the new occasions discovered for their employment, the elaboration of military procedure insensibly suggested the idea that the vital business of the League was not so much to promote friendly co-operation and reasoned harmony in the management of international affairs as to preserve peace by organising war, and, it might be, war on the largest scale. Circumstances might be easily imagined in which war conducted by members of the League and with its collective assistance and approval would become a tragic necessity, but it was not wholesome for the ordinary man to be always brooding over the possibility of some severe surgical operation, nor was it wise for societies to pursue a similar course. It was more likely to hasten the dreaded consummation than to hinder it, and it certainly seemed to the British Government that anything which fostered the idea that the main business of the League was with war rather than with peace was likely to weaken it in its fundamental task of diminishing the causes of war, without making it in every respect a satisfactory instrument for organising great military operations should the necessity for them be forced upon the world.

How War might be Fostered.—It might perhaps be urged that the objections to the Protocol were far outweighed by the blessings of the disarmament which would immediately follow its acceptance? But why should disarmament follow its acceptance? Why should the new scheme succeed when the old scheme had so lamentably failed? Was it to be supposed that the security promised by the new system would be so complete that no armaments capable of being used or improvised for offensive purposes would remain in being? If not, was the balance of power between the States who desired peace and those who were plotting war to be adjusted in favour of the former? If so, on what principle? If not, then how were they advanced? How would the unscrupulous aggressors be relatively weakened and how would their potential victims be rendered more capable of defence? The aggressors within the League were traitors in the sight of mankind, but the aggressors outside the League would have a smaller load of infamy to carry and would be by so much the more formidable. How did the Protocol deal with them? It required them to treat the situation as if they were members of the League, to accept its methods and conform to its decisions. If they refused they were counted as aggressors. They became the common enemy and every signatory State was bound to go to war with them. They might be in the right and have nothing to fear from impartial judges. Yet national pride, dislike of compulsory arbitration, distrust of the League, might harden their objections to outside interference. If so, the Protocol designed to insure universal peace might only extend the area of war, a possibility which, if realised, would not improve the chances of general disarmament.

It might be said that those who objected to the plan proposed in the Protocol were bound to suggest a better. To this challenge the British Government might reply that between the Covenant unamended and the Covenant amended by the

Protocol they had already given reasons for preferring the former. But though they could not believe that security could be reached by the route so carefully explored by the First and Third Committees of the League in 1924, they were willing to consider whether some approach to it might not be made from the side unsuccessfully attempted in 1923.

Sanctions and Security.—They did not agree that without Sanctions the League was powerless and Treaties no better than waste paper. Doctrines like those seemed not only mischievous but self-contradictory. Every Sanction referred to in the Covenant of the Protocol depended on Treaties, and if no Treaties were of value, all Sanctions must be worthless. This did not settle the question whether the Sanctions contemplated by the Covenant could not in certain cases and for certain purposes be supplemented with advantage to the general scheme of the Covenant itself. That scheme might no doubt be trusted in ordinary cases to work smoothly and effectively. The mere threat to employ Sanctions would commonly suffice. And if, unfortunately, it did not, their effect when put into operation would doubtless be speedy and conclusive. But it was easy to imagine extreme cases about which they dared not speak with the same assurance, and it was precisely the possibility of those extreme cases which fostered international suspicion, made Governments hesitate to disarm, and kept the world on edge. The British Government did not share those alarms, but they recognised their serious effect, and believed them to be the main obstacles to the complete recovery of our shaken civilisation from the disasters of war. How were they to be allayed? The first expedient that suggested itself was to strengthen the provisions of the Covenant. If the Covenant as it stood did not supply adequate machinery for preserving peace in all conceivable cases, why not alter it until it did? The futility of that plan was abundantly proved by the Protocol, for whatever else its proposals gave, they did not give security. They multiplied offences, but did nothing to strengthen remedies. They increased the responsibilities undertaken by individual members of the League, but did nothing to readjust their burden.

International Misgivings.—What expedient remained? How was security and, above all, the feeling of security, to be attained? The brooding fears that kept huge armaments in being had little relation to the ordinary misunderstandings inseparable from international life, misunderstandings with which the League was so admirably fitted to deal. They sprang from deep-lying causes of hostility which for historic or other reasons divided great and powerful States. Those fears might be groundless, but if they existed they could not be effectively laid by even the most perfect method of dealing with particular disputes by the machinery of inquiry and arbitration. For what was feared in such cases was not injustice but war—war deliberately undertaken for purposes of conquest or revenge. And if so, could there be a better way of allaying fears like those than by adopting some scheme which should prove to all the world that such a war would fail?

British Proposals.—Since the general provisions of the Covenant could not be stiffened with advantage, and since the extreme cases with which the League might have to deal would probably affect certain nations or groups of nations more nearly than others, the British Government concluded that the best way of dealing with the situation was, with the co-operation of the League, to supplement the Covenant by making special arrangements in order to meet special needs.

"That those arrangements should be purely defensive in character, that they should be framed in the spirit of the Covenant, working in close harmony with

the League, and under its guidance, was manifest. And in the opinion of the British Government those objects could best be attained by knitting together the nations most immediately concerned, and those differences might lead to a renewal of strife, by means of Treaties framed with the sole object of maintaining as between themselves an unbroken peace. Within its limits, no quicker remedy for their present ills could easily be found, nor any surer safeguard against future calamities."

Mr. Chamberlain concluded as follows:

That, gentlemen, is the declaration His Majesty's Government have instructed me to make. His Majesty's Government have found it impossible in the time at their disposal to confer personally with the representatives of the Dominions and India, who also are members of the League, but we have been in telegraphic communication with them, from which it appears that the Governments of the Dominion of Canada, the Commonwealth of Australia, New Zealand, the Union of South Africa and India are also unable to accept the Protocol. Their views will be made known in such manner as they may think fit either by communication to the Secretariat or to the Assembly or otherwise. I am not yet in possession of the views of the Irish Free State.

THE PRESENT POSITION.

HOUSE OF LORDS.—1st April, 1925.

(From "The Times" of 2nd April.)

LORD REDESDALE moved that the Government be requested to make a statement as to the effect of any Treaty, Declaration, or other Diplomatic Instrument now affecting the full rights of this country as a belligerent to act at sea upon sea-borne trade in time of war. He said it was not his intention to attach blame to any one for what happened in the past; the sole object of his motion was to ascertain, if possible, the exact nature and extent of any limitations at present existing upon our rights to use our power at sea. In 1914 we had a supreme Navy, unmatched in strength, skill, and resources, and it was quite certain that if the Navy had been used throughout the war in accordance with the long-standing laws and traditions of this country in the matter of sea-power the war would have been won in months rather than in years. It was common knowledge that our power at sea was not so used, at least until the war had lasted for well over three years, and the results were deplorable and far-reaching, not only for this country, but for the whole world. In August, 1914, so far as strict law was concerned, no limitation existed on our full belligerent rights at sea except those contained in Article 2 of the Declaration of Paris in 1856. During the war entirely new machinery was set up in place of the old and tried machinery of the Prize Courts. A series of committees was formed within the Foreign Office which eventually crystallised into

the Contraband Claims Committee. That body decided from day to day what trade should be allowed unchecked at sea. We were left with no settled principle of action, with the result that neutrals were unlawfully antagonised, while German trade flourished. Five months after Great Britain enforced the historic and admitted law of nations Germany collapsed. Sooner or later the war had to come, but it need not have lasted for four years. The only way to ensure peace in Europe for the future lay in the preservation by Great Britain of an overwhelming Fleet and her plain declaration to the world of the principles which she intended to observe at sea in time of war. Those matters were now completely uncertain. They involved the whole future peace and steadiness of Europe, and incoherence respecting them could not be right.

VISCOUNT HALDANE appealed to the Government to observe great caution in answering the question put by Lord Redesdale. The noble lord considered, possibly with truth, that if we had put our full rights in force, and if we had stopped all imports into Germany, the war might have come to an end much more quickly than it did. But should we have been at enmity alone with Germany in that case? One of the successful things done by this country in the early stages of the war was the most delicate negotiation, accompanied by partial concession, which enabled a great deal of trade to go on with neutral countries, and particularly with one Great Power, which afterwards came to our aid, and which might not have done so if the principle advocated by Lord Redesdale had been adopted in the wholehearted way he had urged. How could they commit themselves beforehand to a policy of interference on the scale which the noble lord desired without raising questions prematurely? He was quite sure that if they did so they would be trailing their coats in a way which would encourage other people to tread upon them, and that they would do themselves no good. What steps should be taken towards defining our rights in any future war was a question which needed the most careful consideration. We had to bear in mind the susceptibilities of other people, who did not see things as we saw them and with whom we desired to remain in friendly relations.

LORD SALISBURY'S REPLY.

The MARQUESS OF SALISBURY said that this subject, one of much delicacy and importance, required to be approached with great care and considerable reticence. In the late war it was not simply a question of what our rights were, but of what, in the highest interests of this country and of the whole world, it was politic to do in the circumstances. It would have been insane to use our Fleet without reference to the interests and wishes of neutrals. It was not a question of power; it was a question of policy, and of policy in the highest sense. We had to consider the position of the great neutrals, and anything like a complete blockade in the old sense of the term was impossible. He thought, in

point of fact, that our policy of coming to an agreement with neutrals in the earlier part of the war was more successful than the stringent and drastic policy of rationing them which was adopted towards the end of the war. We had been criticised for keeping up trade with the neutrals, but there were commodities which the neutrals had that we could not do without, and to quarrel with those countries would have been to cut off our nose to spite our face. After the great efforts which were made at that time, it ill became Lord Redesdale to criticise a policy which in the end was wholly successful.

As to the present position of this country in regard to right of blockade, he would not go into the matter deeply. The experience of the war, the complete destruction of many of the ideas which governed belligerent rights up to that time, had produced a situation which required complete reconsideration by the Powers, and that reconsideration was going on, and it would not help but retard matters if he were to go into any great detail now. The public law of Europe with regard to belligerent rights was again in a state of evolution, as was to be seen in the Treaty of Washington, which would be binding on this country as soon as it was ratified by the other signatories. The House might rest assured that the policy of this country would be governed by the experience of the war, and they hoped that ultimately they might be able to build up again something like a proper jurisprudence in those matters, so that, if ever the need arose, we could conduct another war with some regard for those principles of humanity and civilisation for which this country had always stood.

LORD DANESFORT hoped the Government, with the help of their expert advisers, would consider the lessons learned in the war, so that, if ever the need arose again, this country would have something like a settled policy.

The motion was withdrawn.

SOME ASPECTS OF FUTURE WARS ON LAND.

By Major M. F. Grove-White, D.S.O., O.B.E., R.E.

(1). Introduction.

THE British Army sailed for France in August, 1914, more carefully prepared and equipped for its task than probably any force which had, up to that date, left our shores. Yet, scarcely had fighting commenced, when we found ourselves faced with unexpected difficulties and with problems to which we had no ready-made solution. Looking back on it all, with our later knowledge and experience, we can realise that a student of the Russo-Japanese War, given the necessary imagination, might have foretold many of them, such as—for example—the difficulty of obtaining a decision in modern war, the tendency of operations to become static, and the enormous power of modern weapons in the defence.

It is easy, of course, to be wise after the event; but some, not many, were wise before it and did actually foresee these problems. Their warning, however, fell on deaf ears. Few listened to what they had to say; fewer still believed what they heard. The human race, it appears, is not gifted with imagination. A case in point is the tank, which, devised well before the war by several enthusiastic inventors working independently, was offered to the authorities as a solution to the problem which it was later introduced to solve. Yet it was promptly rejected. The arguments advanced in support of this rejection were undoubtedly sound, but the premises on which they were based were false. The war, in the event, did not follow the anticipated course; we had not generally grasped the problems which it would present. If we have learnt our lesson, we should spare no effort to ensure that we are not again found lacking in imagination. We must not relax our attempts to foresee the problems of the future.

Influenced by such considerations, the writer ventures to offer the following notes. He does not for a moment suppose that he possesses more imagination than his fellows, or even that he is breaking notably fresh ground. In a case of this nature, however, he supposes that any theories may be of value, if only for the purpose of provoking constructive criticism.

(2) The Difficulty of Effecting a Decision.

In examining the history of the War of 1914-18 we must be impressed by the inability of the forces on either side to effect a real military decision. It is hardly too much to say that, except when operations were confined to forces of moderate strength, a really decisive

battle, in the sense that Waterloo was decisive, was never fought. On the Eastern Front, the collapse of the Russian armies was caused far more by the shortage of munitions and by the Russian Revolution than by any military achievement of the enemy. On the Western Front, the final defeat of Germany was largely facilitated, if not altogether caused, by a combination of circumstances which included the sapping of the moral of her civil population, the gradual exhaustion of her supplies, and a lengthy period of attrition. On the other hand, where comparatively small forces were engaged, decisions of the most complete character were obtained, instances of which are the Battles of Tannenberg and the Masurian Lakes and Lord Allenby's final campaign in Palestine. Yet, even of these, the first two were only decisive in so far as they affected the particular forces engaged and their own limited theatre of operations. The German victories had no decisive effect on the Russian Front generally.

Bearing in mind that the factors which tended to prevent a decision will probably be found at work in the next great war with equal, if not intensified strength, we must turn them to our advantage. If we are on the offensive, we must try to eliminate them; if on the defensive, to use them against the enemy. But first, by a study of the last war, we must discover them. Starting, then, with the original German offensive on the Western Front, we saw an attempt at envelopment made with all the advantages of surprise, of numbers, and of long and careful preparation in its favour. It was the plan of Metz and Sedan over again. Metz and Sedan had been great German victories; yet, in 1914, the identical plan failed. It failed because before the marching wing reached a position from which it could make its weight decisively felt, the French, using railways and motor transport, had time to concentrate sufficient forces, at the decisive point and time, to check it, and even to outflank it. The attack failed because the marching wing had insufficient *mobility* and because the remainder of the German Army had insufficient *offensive power* to pin the enemy while the enveloping movement took effect.

Following this gigantic episode, both on the Eastern and Western Fronts, came a series of attempts to break through, but decisive penetration was never effected. It could never be carried out with sufficient speed. The enemy always had time to readjust his line or to bring up reserves to fill the gap before a decisive point could be reached. This lack of speed resulted from two causes. In the first place, directly an offensive was launched, the attackers found themselves in a devastated area in which all the communications had been destroyed. Their pace, consequently, was limited to the rate at which they could progress on foot. Attempts to use cavalry, in order to hasten this progress, were defeated partly by the holding power of wire and machine guns, partly by the fact that it could not usually progress far enough without support. Tanks were no more successful, for they, too, were tied to the other arms. The ruling pace was the pace of the infantry. The second cause

had to do with supply. It was impossible to restore and to maintain communications at sufficient speed to enable supply to keep up with the rate of advance, slow as the latter was. Sooner or later a pause had to be made to enable it to catch up.

The failure to effect decisive penetration, then, was attributable chiefly to lack of *mobility*, both of *troops on the battlefield* and of *supply services immediately in rear*. The term "supply" here is used to include not only the provision of food, but also of ammunition, water and engineer stores.

In Palestine, on the other hand, Lord Allenby succeeded, after effecting penetration on the enemy's flank, in passing a highly mobile force through the gap and in achieving decisive envelopment. The front held by the enemy, however, was comparatively short, and the Turkish forces were not organised in the depth which prevailed on European fronts. Consequently, a shallow penetration was sufficient, and the enveloping force was able to strike quickly at the enemy's brain and nerve centres, that is, his general and formation headquarters. This prevented the enemy from putting into force any concerted measures for repairing the damage; owing to the circumstances and to the restricted nature of the theatre of operations, the *mobility* of the striking force was sufficient to enable a decision to be effected.

It seems, then, that our maximum mobility was sufficient to obtain a decision in a restricted theatre of operations, but insufficient in war on a large scale. It is proposed, now, to apply this lesson to the next great war in order to discover how, by increasing our mobility, we may make a decision possible if we are on the offensive; and how, when on the defensive, we may deny to the enemy a chance of obtaining a decision by rendering him immobile.

(3) The Offensive.

The failure of the great German enveloping movement on the Western Front in August, 1914, failed chiefly on account of lack of mobility. Such a movement is almost bound to fail with forces organised as they were then or as they are now. In war on such a scale, the decisive point will usually lie far behind the enemy. To reach it, the marching wing must cover long distances. Its pace, moreover, will be that of marching infantry, for the defence will make sure of destroying the railways. The defender, on the other hand, can make full use of his lateral railways for the conveyance of reserves to the threatened point. Hence the mobility of the reserves of the defence is greater than the mobility of the attack.

The same argument applies equally to penetration. The troops of the attack, destined to exploit the gap, must traverse an area in which communications have been destroyed. Their pace, consequently, cannot be greater than that of men on their feet. The defence, on the other hand, can bring reserves by rail or motor transport practically up to the line. There is only one way in which the balance of mobility can

be redressed,and that is by the increased use of motor transport of a type which will enable artificial communications to be disregarded. Moreover, since the mobility of a force, if proper co-operation is to take place, is that of its slowest moving arm, mechanical transport must be applied to the carriage of all arms, including that of infantry. We are, then, faced with the prospect of completely mechanicalised formations. We must enquire if the whole army must be mechanicalised, or, alternatively, if all parts of an army must be uniformly mechanicalised.

It is doubtful whether any nation could afford, in peace, to construct and maintain the enormous mass of mechanical transport required to mechanicalise completely a whole army of modern scale. It is also doubtful whether any commander will be able to control in war a mechanicalised army of the size of modern continental armies, or, if he will be able, at least to extract from it the full value of its mobility. It appears probable that only part of such an army will be fully mechanicalised.

Lack of mobility, in the last war, prevented an early decision. With the armies growing rapidly in size and fire power, this lack of an early decision in 1914 led to trench warfare. Everyone, it is supposed, wishes to avoid trench warfare, unless he is deliberately trying to postpone a decision. Hence, great mobility is most important for those forces which will be available in the opening phases of a war. Completely mechanicalised formations may be expected among these, and will probably be used much as cavalry was formerly employed,—that is, to cover the main army in an advance, to act on its flanks in battle, and to undertake the pursuit.

Of the armed forces of the British Empire, the only portion which is likely to be engaged on the Continent in the opening phases of a war is the Imperial Regular Army. Owing to the fact that this force must be based on the sea, it is more likely than not that it will be used on the flank of any Continental Army with which it may be co-operating. This points to the necessity for the mechanicalisation of the whole of the Regular Army. The same argument, however, does not apply to the Territorial Army, nor to the forces of India and the Dominions, which may be expected to appear on the Continent only in later stages, when the same high order of mobility is not so important. In the early stages, nations will not possess the numerous and powerful armament of which they will dispose later, and, consequently, it may be possible to sacrifice power, to some extent, in favour of mobility. By the time the Territorial Army is ready to take the field, however, it is to be presumed that, no decision having been reached, we shall have settled down again to something like trench warfare. We must then obtain our decision by penetration. Remembering the rapid growth of fire power during the course of the last war, due to the introduction of automatic weapons in ever-increasing numbers and to the expansion of the artillery arm, it must be supposed that the attack, in the next war, will have a harder nut to crack than ever. If this is so, it will be

necessary to increase the power of the attack, at any rate during the preliminary stages.

Increased weapon power, however, usually means increased weight, and the weight carried by the soldier has already reached a limit. Salvation, again, is only to be found in the increased use of mechanical transport; and since, other things being equal, a mechanical vehicle which can combine fire, movement and protection is of more value than one which cannot fire and move simultaneously, we must rely more than ever on the tank. Here, then, we are faced with a new problem. In the last war, anti-tank weapons were only in their infancy. In the next war they will be numerous and powerful. Consequently, we may require a much more powerful and better-protected tank to break the crust of the defence. It is suggested that armour which is proof against field artillery shell may be required; the reasons for this are given below in considering the defence.

Again, since co-operation has lost none of its importance, any arms which are intended to work in conjunction with tanks must be endowed with mobility equal to that of the tanks, for it is surely illogical and unsound, having given to tanks a certain mobility, to prevent them from using it by linking them with slower-moving arms. Consequently, infantry, or, at any rate, the leading infantry, in the attack should be carried in mechanical transport. This does not mean that they will cease to fight on foot. It does mean that they will have sufficient mobility to take instant advantage of any success gained by the tanks, and that they will be able to arrive not only at the decisive point but also at the decisive time.

In this stage of the attack, power and protection rather than great mobility will be the chief requisites. In the following stages—in the exploitation of success—mobility again will become of great importance. The existence of the highly-mobile Regular divisions, and possibly of some Territorial divisions organised on the same lines, should provide a force adequate for this purpose. But since the Territorial Army itself will not be ready to take the field for some time after the declaration of war, there seems to be no necessity for manufacturing and maintaining all these heavy tanks and infantry transporters in peace. It will be sufficient to carry out trials and to have everything in readiness to start manufacture when war comes. Sufficient, however, must be maintained in peace to enable some training to be carried out. This subject will be discussed more fully below.

(4) The Defensive.

The defence, in the last war, relied largely on the fire power of automatic small arms. The tank, however, presents a problem which the small arm cannot adequately solve. The only effective replies to the tank seem to be (*a*) obstacles, natural or artificial; (*b*) anti-tank weapons, including artillery; (*c*) tanks, which are the best reply of all.

It is improbable that an army will possess sufficient tanks or anti-tank weapons to make it secure from tank attack along the whole of its front. It must, then, rely largely on obstacles, and these must normally be natural, since artificial tank obstacles take too long to construct. In view of this, a position may be chosen with natural tank-obstacles as the main consideration. These, in addition to stopping tanks, will also stop tractors carrying guns, infantry or supplies. Such obstacles are not so rare as would at first appear. In most country, rivers, boggy streams, woods, belts of trees, ravines, or even sunken roads, can be found.

There are sure to be gaps, however, and it is these which will constitute the danger points. An enemy will hardly dare to launch infantry to the attack across tank-obstacles, for, on arrival on the other side, such infantry, deprived of the support of its own tanks, will be exposed to hostile tank counter-attack. Moreover, its supplies will not be able to reach it quickly. It is in the gaps, therefore, that attack may be expected and, consequently, it is in the gaps that most of the available anti-tank weapons will be massed.

A tank attack, if it succeeds, will have a very great effect, material and moral, on the defending infantry. In this case the infantry is being directly attacked by something which with its own weapons it finds difficulty in stopping. It must rely for its protection on another arm, and, if that protection fails, its confidence will be shaken and mutual co-operation will be adversely affected. It is for consideration then whether infantry should not be provided with anti-tank weapons of its own. We, who have never yet been seriously attacked by tanks, can scarcely realise the bad moral effect which a successful attack of this kind may have on the defenders. We can only read about it in German literature on the subject.

If, then, tanks are likely to constitute the greatest and most immediate threat to the defending infantry, it is possible that anti-tank work may become the most important task for field artillery. It may even be necessary to site a large proportion of the available field guns of the defence for this purpose. This, however, will be of little use unless the field gun is made into a suitable weapon for anti-tank work, a conclusion which implies that this consideration should enter largely into its design. The probable existence of this powerful mass of anti-tank weapons, including field guns, points to the necessity, from the point of view of the attacker, for more powerfully protected tanks.

Apart from the question of local defence on the battlefield, there is the general problem of the measures to be taken to delay an advancing enemy. The Germans taught us a great lesson in this respect by their use of demolitions on a large scale. An advance through a country which has been deliberately devastated always has a depressing effect on any army, if nothing worse. Those who doubt have only to read the history of the *Grande Armée* in 1812, and to note the effect on Napoleon himself of the burning of Smolensk, Moscow, and countless

villages besides. Extensive as were the German demolitions in 1917 and 1918, they were nothing as compared with that which could be accomplished—given the necessary explosives, appliances, time and, above all, training.

In our continental campaigns we have so often had to retreat, pending reinforcements, that we might take this lesson particularly to heart. We should be ready, if necessary, to oppose to the increased mobility which our assailants are certain to possess, a military desert complete, at least, as regards destruction of communications. If we are operating in a friendly country, we may only be able to attack communications; if in a hostile country, we can accomplish more. At any rate, at the commencement of a campaign in the future, it seems that the two most important tasks for our engineers will be (*a*) the destruction of communications for mechanical transport; (*b*) the repair of the same.

(5) Mechanical Transport.

Various reasons have been given above for supposing that, in the future, the mechanicalisation of armies will be carried to a very high pitch. These arguments are supported by progress since the war, for, in the British and French Armies, we have seen mechanical transport introduced on an ever-increasing scale, while all the Great Powers are considering the formation and employment of mechanicalised divisions, at least on paper. It becomes necessary, if we accept this theory, to consider broadly the type of transport required. It is submitted that all mechanical transport which is liable to be used in advance of railhead should be capable of movement off the roads. Here it is necessary to say a word in explanation of the term "cross-country tractors" or "cross-country mechanical transport." The present writer submits that such terms do not envisage vehicles which will normally move off the roads. They imply, on the contrary, vehicles which will normally move on the roads but which can, when necessary, move off them. It is more economical in speed, in fuel, and in wear and tear of material to move, when possible, on roads, and economy of force applies as much to transport as to any other factor in war.

The reasons why it is contended that all mechanical transport in advance of railhead should be able to move off the roads are as follows:—

(*a*) Tanks, we have seen, will probably form the spearhead of the attack. But tanks must be supported by other arms, and these other arms must be carried in cross-country mechanical vehicles, otherwise the tanks, being tied to their supporting arms, will lose their mobility. All these troops, however, cannot progress far unless they are kept supplied; and, if war is going to move much more quickly than in the past, supply vehicles cannot wait for regular communications to be pushed forward across devastated areas. They must be independent of such communications and, consequently, must be of the cross-country

type. It comes to this. Fighting troops will be endowed with a certain measure of mobility. To ensure co-operation, *all* fighting troops must have this minimum standard of mobility. To ensure that it is not wasted—to avoid, in fact, a violation of the principle of economy of force—supply services on which the troops depend must also possess a corresponding mobility.

(*b*) We have seen that demolition of communications will probably be carried out very thoroughly in future. As we saw in the last war, in a rapidly-moving battle, as in 1918, the devastated area may easily extend back to and behind railheads. Remembering the effect on communications which may be caused, even after they have been restored, by delay action mines, we see the necessity for all mechanical transport in advance of railheads to be able, when necessary, to move off the roads.

Here again, however, we must not violate the principle of economy of force by expending time, material and energy in giving transport-mobility which is not required. Tractors and transport operating with attacking troops, or with the highly mobile mechanicalised division, will often have to move across country which will be very much cut up and broken. Moreover, to avoid delay, they may be forced, sometimes, to push forward regardless of a certain amount of fire from posts which have not yet been "mopped up." Consequently, they must be protected by armour to some extent, and must be very suitable for cross-country work. Further back, on the other hand, vehicles will not be exposed to such fire, and, if they have to cross country at all, it will usually have been possible to prepare some kind of rough tracks. Their power of crossing broken country, in consequence, need not be so high.

(6) Roads.

In the last war, in France, we were operating in a country in which the roads were probably as good as anything we are likely to find in the future on the Continent. Yet these roads stood the strain of traffic only with difficulty and by dint of constant repair and labour. What, we may ask, will be the result of trying to work, possibly on worse roads, with a greatly increased volume of mechanical transport? The answer seems to be this. In the earlier stages of a war we rely on our increased mechanical transport to give us greater mobility. If this end is achieved, operations will tend to move much more quickly and the roads in any area will be used for a much shorter time. If, on the other hand, we settle down again to trench warfare, the volume of traffic on the roads is not likely to be noticeably greater than it was in the last war. On the other hand, trench warfare, owing to our increased facilities for effecting a break through, is likely to persist for a shorter time. Moreover, the introduction of tracks instead of wheels will give a more even distribution of load, and damage to the road is likely to be diminished. Ability of transport to move off the roads will make the repair of the

latter more easy to accomplish and will enable bad patches to be avoided.

It would seem, therefore, that the increased use of mechanical transport, provided that it can move off the roads in case of necessity, is not likely to increase, but rather to diminish the road problem.

(7) Oil.

Increased mechanicalisation means increased consumption of fuel. At present the fuel chiefly used for mechanical transport is petrol. Of the oil from which petrol is derived, about 85 per cent. of the world's production comes from the United States and Mexico. The remaining 15 per cent. represents about 115 million barrels a year, of which only 30 million barrels are produced in the British Empire.

But, in 1918, some 40 million barrels were required by the British Navy, Army and Air Force alone, and in that year less than half of the fleet was oil-burning. Taking into account civilian requirements, the increased use of oil in the Navy and in the mercantile marine, and the possible great increase in mechanical transport in the Army, it will be realised that, in a future war, our requirements may be very much more than 40 million barrels. In fact, an estimate of 60 million barrels might be considered to be conservative. Unless, then, we take some appropriate steps in the matter, we must rely on the friendship of the United States. However improbable friction with that country may be, it is surely unwise to rely entirely on such continued friendship. Moreover, according to the United States Geological Survey, the peak of production of the United States oil fields will soon be reached, and production thereafter will fall rapidly. Happily for us, very large, and hitherto untouched, deposits of oil are known to exist, particularly in Canada. It should be our business as an Empire to see that all Imperial sources of supply are adequately developed in order that we may not have to rely in war on the friendship of any one nation.

This, however, is not sufficient. The questions of man-power and transport arise, and these two problems may be as pressing in the next war as in the last. Particularly is this so as regards the supply of tankers available for service under the British Flag, when we consider that we may not only have to supply ourselves but also our allies. Economy in petrol is consequently essential, and it is proposed to consider what can be done in this direction. Benzol, a coal derivative, and alcohol, chiefly derived from vegetable substances and, in particular, from potatoes, may be used as a substitute for petrol. Alcohol, by itself, can only be used in engines specially designed for the purpose, but it can be used in ordinary internal combustion engines if mixed with benzol or petrol.

To take advantage of our coalfields, the use of benzol should be encouraged so as to bring its production up to a maximum. The growing of crops from which alcohol can be produced, however, is not possible in Great Britain on a sufficient scale to enable this spirit to

replace petrol altogether. The greatest possible production of benzol and alcohol in Great Britain would only satisfy a fraction of our war-time requirements. A committee, which discussed this question during the war, stated that suitable crops could be grown on a large scale in our possessions in West and East Africa. The advantage of this lies in the fact that most of the production work could be done by natives who might not, otherwise, be employed in warlike activities at all. This suggests that the Government might, with advantage, institute and develop this industry in peace.

Other methods of economy in petrol suggest themselves. Research work, for instance, might be instituted with a view to producing mechanical transport fitted with gas or gas-producer engines. All or most of the transport at the bases and on the lines of communication might be of the coal-burning steam type. Electric traction might be used to a greater extent in the rear zones, and, finally, railways should be used to the fullest possible extent.

In view of the fact that the supply of oil and its derivatives, such as petrol, kerosene, etc., is going to be of such vital importance to us in a future war on a large scale, it is important that we should make arrangements, not only for building a reserve, but also for guarding such a reserve from organised attack and, especially, from *sabotage*.

We must also see to it that a sufficient fleet of tankers is available.

(8) Personnel.

If mechanicalisation is to increase to the extent which has been envisaged above, it is doubtful whether we have available sufficient of the right type of *personnel*. The class of mechanic who will be required only exists in the Army in small numbers, and in the whole country he does not exist in nearly sufficient numbers. Moreover, fighting in a confined space, such as a tank, is an experience to which a soldier must be accustomed, and until he is accustomed thereto he will not be able to fight with anything like his full efficiency.

There arises, then, the necessity for training a very large number of men in these duties in peace. Less difficulty should arise in the case of the Regular Army than in that of the Territorial Army; for, if the former is wholly mechanicalised in peace, it will presumably have time to train its own men. In the case of the latter, however, such good facilities for training will not exist, since, as has been shown above, it is unlikely, for financial reasons, that it will be possible to provide formations in peace with their quota of mechanical transport. It would thus be necessary to use the Regular Army to the fullest possible extent for providing training facilities for Territorials during weekends and during annual training. Otherwise sufficient vehicles must be available to enable intensive technical training to be carried out in Territorial Divisional concentration areas pending the arrival of their own mobilisation vehicles. In view of the limited number of vehicles and stores

available for this training, it seems probable that it will have to be carried out at schools in the areas with a view to providing specialists and instructors for the units.

(9) Conclusion.

The foregoing notes only touch on a very few of the problems with which we may be confronted. The air, for instance, has not been mentioned. On this point, however, it may be said that anything which gives us greater mobility and which enables us to move long distances under cover of darkness, will render us less vulnerable. Neither has reference been made to gas, nor smoke, nor to the use of darkness to cross exposed areas, nor to concealment, nor to scores of other points which may loom large in the future.

If, in the course of these notes, the writer has created an impression that he is criticising our present organisation and armament, he hastens to disclaim any such intention. The next Continental war on a large scale in which we may be involved will not come, we hope, for many years. But organisation and armament are progressive, and it is improbable that we shall enter such a struggle armed and organised as we are now. It would be foolish of us if we did not look ahead into the future, so that, when the inevitable changes come, we shall be able to adapt ourselves to them.

ELECTRIC RAILWAYS IN WAR.

By Lieut.-Colonel H. G. de Watteville, C.B.E., R.A. (R. of O.).

ELECTRIC power is being systematically adopted in place of steam for all purposes of railway traction in many European countries. So far has this process been carried in Central Europe during the past years that it is already doubtful whether the conduct of any extensive military campaign could be considered in this area without some attention being paid to the peculiarities of the electric railway. Hitherto the conversion from steam to electricity—for main line traffic, at any rate—has been chiefly confined to mountainous regions, where water power can be utilised for the generation of the necessary current. But the electric may shortly be replacing the steam locomotive yet further away from the Alpine watersheds. It is, perhaps, legitimate to assume that, by 1927, no major campaign could be fought in the greater part of Central Europe lying between the Pyrenees in the south-west and the Carpathians in the east without the employment of electrically-drawn trains. Austria and Switzerland will by that time be completely electrified; southern Bavaria will be nearly electrified; northern Bavaria, northern Italy, certain districts of France, Tcheko-Slovakia and even of Germany will be in the throes of electrification.

The problem of the electric railway had been studied in Germany long before the Great War. Curiously enough, however, the real reason for the interest taken in that question by the German General Staff did not arise out of the necessity, or even the possibility, of making use of any existing electrically operated railways: it sprang from a definite desire to consider whether by the electrification of the German State Railways it might not be feasible to accelerate the process of mobilisation, and thereby to achieve some stupendous military victory by the greater speed realised in the initial transportation of the German armies. It was mainly with this object in view that an electric line had been built, wholly for military purposes, between Berlin and Zossen as far back as 1903. On this line, constructed with special rails and furnished with special rolling stock, speeds rising to nearly 130 miles per hour were attained. Following on the success of these trials it was further proposed to construct a special track for non-stop, high-speed, electric trains to run between Berlin and Hamburg. That journey was to be effected in 1½ hours at a speed of nearly 170 miles per hour. The project fell through, it is said, owing to financial difficulties. But the German General Staff was at bottom undoubtedly and wholeheartedly opposed to the electrification of any of the main lines that might be utilised for a general

mobilisation of the Army. The reasons for this attitude have been clearly set out in an appendix to a small *brochure* that has recently appeared in Germany.[1] This appendix is worthy of serious study, not only from that standpoint alone, but also as a guide to the entire problem.

It has to be remembered, in the first instance, that military trains run to considerable length; they are usually very heavy; the rolling stock employed on them is often not fitted with highly effective braking systems. High speeds are, thus, out of the question, and indeed might prove of rather dubious assistance in carrying out a full or prolonged mobilisation time-table. Great reliability and punctuality were fully assured with the railway systems existing in Germany in 1910. Consequently, when a project was set on foot and supported by the Prussian Minister for Railways which aimed at the electrification of certain lines near Cologne, beginning with the Eiffel line extending from Cologne to Trier, the General Staff strongly opposed the plan. The scheme was based on the exploitation of the soft brown coal deposits situated south of Cologne. For economic reasons the project would infallibly have ended with the electrification of the entire railway system in the Cologne district. Commercially the scheme was attractive, but military influence was sufficiently powerful to cause its complete abandonment. The General Staff, however, was not satisfied with this triumph and went a step further: this was to outline and to impose its views concerning the electrification of the German State Railways as a whole. Accordingly, it was decided that the experimental electrification of German railways should be strictly limited to certain lines serving the area Leipzig-Halle-Glatz and Magdeburg, *i.e.*, lines not really affecting any large mobilisation scheme.

Since that day electric railway traction has been much improved. It may now be said that there are certain advantages besides mere speed which the electric railway can offer. Thus the electric engine—

(i) can do a longer day's work than the steam locomotive. It has been found, for instance, that, even after such a long and severe journey as that over the stiff St. Gothard route, the electric engine is able, after a change of driver and a brief inspection, to resume work, whereas the steam engine may require a rest and an overhaul;

(ii) is more handy and requires no "turning round" to resume a return journey;

(iii) is, when built for that purpose, a strong hill-climber as well as fast on the level;

(iv) develops a greater power, weight for weight and bulk for bulk, than the steam engine.

[1] Aufmarsch nach zwei Fronten auf Grund der Operationspläne von 1871–1914. Von H. von Staabs, General der Infanterie a. D. Berlin: Mittler u. Sohn. 1925.

On the other hand, there is one serious weakness to be found in any electrically operated railway system: it is extraordinarily susceptible to injury. To such an extent is this the case that even one single act of *sabotage*, perpetrated in the generating station, might cripple a vast section of any main line. Neither would this damage be so easily remediable by the emergency substitution of steam for electric locomotives, for it is more than likely that a sudden stoppage of this nature would find the main line blocked with stationary trains with no possibility of getting the steam locomotives to the relief of the trains thus left in the lurch. Besides which, as time goes on, the steam locomotives and their *personnel* must tend to disappear.

This was the true consideration that led to the German General Staff definitely opposing any extensive electrification of railways, beyond town tramways, branch lines, mountain railways, or such lines as did not vitally affect any main plan of mobilisation. As the matter grew more urgent, a further source of anxiety to the General Staff was the possibility of being caught midway in any process of electrification, *i.e.*, with a dual locomotive *personnel*, one half manning electric engines alone, the other half unable to handle any but steam locomotives. Finally, it came about that the German Staff realising that railway electrification must come, first tried to put off the evil day when the steam locomotive should cease to be the normal mode of traction, then desired to evolve a detailed scheme whereby this danger of parallel systems should be minimised as far as possible.

Since 1914 the problem of the electric railway has been complicated by the development of aerial warfare and by the consequent threat of extensive aerial operations accompanying any outbreak of war. Bombing railway lines would assume very different importance if it were known that the explosion of even a lesser air projectile occurring at a distance of several yards might wreck the overhead lines, or even the live conductor rail, and so bring to a standstill an entire railway system dependent on this mode of conveying electric energy. It is, in fact, equivalent to multiplying the chances in favour of the aircraft thirty or forty times—or who knows by what extent? The bombing of the Metz railway junctions by the Allies in 1918 would have had a very different result had those lines been dependent on electric traction. Moreover, the power stations themselves, their transformers and distributing boxes must become objects highly sensitive to aerial attack.

In addition, there exists the minor defect of the brilliant flashes, or "arcing," that are produced by faulty contact between the overhead "scraper," or between "shoe," and conductor. This peculiarity is found to be a grave defect at night, when secrecy against aerial observation is required.[1] This fault is but a detail and might be

[1] It was stated by the Germans themselves that the German airship that bombed London on 8th September, 1915, found her way over the darkened city by means of the flashes emitted in this manner by the electric tramways.

eliminated. Nevertheless, it has to be admitted that, under present conditions and as far as can be foreseen, there must always remain the grave drawback to electrification in the shape of a risk of stoppage of trains due to any wilful or accidental break in the current. There is also another technical and by no means easy question as to how far the power of any electric line may be able to cope with the increased and heavy needs of a military time-table.

Consequently, the successful operation of an electric system in time of war presumes the availability of a highly competent, adequate and resourceful railway *personnel*. Inefficiency will involve certain failure. Not only must the quality of this staff be above question, but its fidelity must be irreproachable. The risk of *sabotage* in any generating or transforming station is, of course, immense. A malicious turn of a switch, impossible of detection maybe, might suffice to wreck a whole complicated mobilisation table. There is, consequently, but little doubt that the electrification of railways must add considerably to the cares of a belligerent General Staff. Any invasion of hostile country would, as a matter of course, find an electric railway system out of action. The invader must either restore the damaged conductors and furnish his own power, or supply his own steam locomotives. The former alternative might take time; the latter may, in the course of some years—or, at least as electrification grows more general—become more and more difficult. It may be found possible to employ Diesel-electric railway motors, such as are being introduced on certain Continental branch lines and on Colonial railways where the laying of a conductor wire or rail is not a financial practicability; yet this can only be regarded as a very inadequate or partial palliative. Live conductor rails are probably less susceptible to aerial attack than overhead conductor wires, but these are by no means of common employment; the overhead conductor is almost universally preferred in spite of the fact that in mountainous country overhead wires are not seldom damaged by avalanche or storm. In time of war electrified railways will need the provision of a highly trained constructional *personnel*, with ample repair material at hand. This *personnel*, moreover, must be so distributed as to be ready to proceed to the scene of any damage at all speed *by motor transport and by road*.

The day is now approaching when electric traction on railways will, in many regions, be an accomplished fact and will have to be employed in military operations. Its shortcomings must, consequently, shortly be taken into account. Even in such minor expeditions as might be conducted by British forces in Africa or Asia, the day may come when the use of an electric line will be found inevitable for the conduct of any such campaign. So long as the enemy does not possess aircraft, the matter may be much simplified. But there are still certain minor precautionary measures which might have to be as rigidly enforced as in European warfare.

To return to the latter. Where electric railways are employed the following points will have to be considered :—

i. Extreme care must be taken to ensure the *bona fides* of the *personnel* employed in generating or transforming stations and particularly of the men employed at switchboards.
ii. Long stretches of railway may require protection against *sabotage*, the military precautions in hostile districts through which run any electrified lines requiring special care.
iii. Alternative and emergency sources for the supply of power must be provided.
iv. A number of Diesel electric engines or of electric accumulator engines should be available, in the absence of steam locomotives, for haulage of electric trains in an emergency.

There are, in addition, certain possible constructional safeguards which would doubtless be adopted by any military Power engaged in the electrification of its railways in any district of vital importance. Such details would consist in the possible duplication of cables, the division of the line into numerous sections by control stations fitted with duplicate switchboards, etc.

The German General Staff had attempted to go even farther and formally vetoed the electrification of railways in the frontier zone of detrainment on the left bank of the Rhine. General von Staabs in the *brochure* under notice draws a lurid picture of the chaos that would have been brought into the German mobilisation plan in August, 1914, had any failure occurred on the railways used by the right wing of the German Armies between Cologne and Aix-la-Chapelle. Such failure, he considers, would have been inevitable if those lines had been previously converted to electric traction, even in the face of the almost complete absence of any hostile aerial enterprise. But military considerations cannot delay the march of progress much longer and Continental military thought is beginning to accept the impending change, together with its risks, as inevitable, while aerial warfare is rapidly enhancing those risks.

By permission of Air Ministry.

ROWANDUZ COUNTRY, KURDISTAN.

By permission of Air Ministry.

HINAIDI AERODROME (NEAR BAGDAD).

THE AIR FORCE IN IRAQ.

By Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O.

On Wednesday, 25th March, 1925, at 3 p.m.

Major-General Sir Percy Cox, G.C.M.G., G.C.I.E., K.C.S.I., in the Chair.

The Chairman: My Lords, Ladies and Gentlemen,—I am sure Sir John Salmond requires little introduction to this audience. He started as a soldier in the King's Own. At the beginning of the War he was a Brevet Major, and after very fine service during the War in the Air Force he came in contact with me as Air Officer Commanding in Iraq. When the scheme that was decided upon at a Conference in Cairo in 1921 took shape, he came out to Mesopotamia in command. He is now a very important functionary from the point of view of all of us as Air Officer Commanding-in-Chief the Air Defences of Great Britain and he is one of the most important officials that we depend upon in any future war. I do not think I need introduce Sir John any further to you, and I will now simply ask him to deliver his lecture.

LECTURE.

SIR PERCY COX; My Lords, Ladies and Gentlemen,—The lecture I am about to give covers the period dating from the inception of the R.A.F. scheme of control in Iraq, namely, October, 1922, to last April, when I relinquished command. I think what has occurred since then had better be left till the officer on the spot, Air Vice-Marshal J. F. A Higgins, has the opportunity of telling you first hand.

In the short time available, I can only give you a summary, and that an inadequate one, of all that took place. I must eliminate a description of our organisation, but wish to preface my remarks with the acknowledgment of our great debt of gratitude to the succeeding High Commissioners, Sir Percy Cox and Sir Henry Dobbs, to their Staffs and those other civilian Staffs of the Iraq Government Departments. Without their whole-hearted co-operation and the unsparing assistance of the Administrative Inspectors and Police Officers in the various districts, that measure of success attained could certainly not have been reached.

You will recollect that we wrested Mesopotamia from the Turks during the Great War. Our essential interests at the head of the

Persian Gulf and the Turco-German power to organise a Jehad extending from Arabia to the Indus compelled us to embark on this campaign.

The brilliant victories of General Townshend led to the tragedy of Kut. The tragedy of Kut engendered the determination to wipe out the effects of this set-back and proceed to Baghdad. The fall of Baghdad and our operations round Mosul concluded the campaign and left us with the responsibility of that vast trackless desert region.

A manifesto by General Maude on entering Baghdad sets forth the undertaking of our responsibility towards the Arab natives of Mesopotamia, whom we had freed from the yoke of Turkish misrule after close upon 300 years.

During the course of the War, our Chairman, Sir Percy Cox, was Chief Political Officer to the Army Commander in Mesopotamia, and Civil Commissioner for internal affairs. As the *personnel* of the existing Turkish Administration always retired with the Turkish Army, it became his duty to establish Civil government under British Officers *pari passu* with our advance, whenever and wherever the military position had been sufficiently consolidated to admit of it.

On Sir Percy's deputation to Teheran in the autumn of 1918, the process was continued by his *locum tenens*, Sir A. T. Wilson, and developed after the Armistice. In 1920 a tribal rebellion having occurred which it cost a good deal of money to repress, His Majesty's Government and the British public begar to think seriously of cutting their losses. In the result Sir Percy Cox was recalled from Persia to endeavour to set up national Arab Government under British guidance, as the only possible alternative to evacuation. On arrival in October, 1920, he established native government by a Council of Ministers under his own direction, and in 1921 the policy was further developed by the election of a King—in the person of Feisal, the third son of King Hussein, ex-ruler of the Hejaz.

The following year, Great Britain entered into Treaty relations with Iraq whereby we undertook to have the frontiers quickly delimited and to use our good offices to secure for Iraq membership of the League of Nations. On their side they bound themselves to abide by the advice of the High Commissioner in all matters international and financial and, as a condition for membership of the League, to carry into effect the "Organic Law," which provides for a limited monarchy consisting of the King, a nominated senate of "elder statesmen," and an elected Legislative Assembly.

By a Protocol of 1923 it was agreed that this Treaty should come to an end upon Iraq becoming a member of the League and in any case not later than four years after the ratification of Peace with Turkey. The Treaty of Lausanne was concluded in 1923, but this did not decide the northern frontier of Iraq, which was left to the decision of the League of Nations.

It seems to have always been, up to a few months ago, an expensive country to run, even in normal times. Under Turkish

sovereignty before the war, no less than 40,000, all arms, were kept as a permanent garrison. After the War, in the normal period of 1921, it cost 21 millions for the garrison of Imperial Forces and Levies. But now, with Air Force in control, it costs 3–4 millions. It was primarily the expense entailed to the British taxpayer in keeping large garrisons on a depleted exchequer that led this country into consideration of means whereby these burdens might be lightened.

It was advanced that the Army garrison could not be further reduced without grave risk, and yet it was obvious that, unless we were going to relinquish our Mandate, a very substantial decrease in the garrison must be made.

On the horns of this dilemma, the then Colonial Secretary, with characteristic imagination, conceived the idea of controlling this vast trackless area by aircraft, and summoned, in March, 1921, a Conference at Cairo to discuss his proposal.

It was there decided that the Military Control of Iraq should be in the hands of an Air Officer who would have command of all Military and Air Forces, including Levies; that the garrison should consist of:—

4 Battalions, 1 Pack Battery, 8 Squadrons R.A.F., 4 A.C. Coys. and 15,000 Irregulars.

The conditions under which it was considered that a garrison of this size could function were as follows:—

(*a*) The country should be free from organised rebellion, but liable to ordinary spasmodic disturbances.

(*b*) That there should be no imminence of danger from external attack.

In October, 1922, the control passed from the Military authorities, in whose hands it had been for several years, to the Air Force.

Now, the country for which the R.A.F. were taking responsibility is for the most part a vast alluvial plain, flat and completely stoneless, watered by the Euphrates and Tigris. The slope on this plain is so gradual that between Basra and Baghdad, a distance of 350 miles, the ground only rises about 100 feet. To the N. and N.E. it becomes more undulating till Kurdistan is reached, when it transforms to a country of high peaks and deep ravines similar to Switzerland or the N.W. Frontier.

There are no roads, only tracks, which become impassable in wet weather. The most important of these are Baghdad to Basra along the Tigris, and Baghdad to Mosul and Baghdad to Ramaidi on the outskirts of the Arabian Desert.

The two great rivers, Tigris and Euphrates, are navigable only for very shallow draft, and for ocean-going steamers to Basra, 70 miles up the Shatt-el-Arab.

The railway systems are Baghdad—Basra, metre gauge; Baghdad —Shergat, standard gauge; and Baghdad—Kifri, metre gauge. This latter is connected to the other metre gauge by waggon ferry. The

Constantinople railway runs to within 200 miles of Mosul and Nisibin. You will notice how great the distances are :—

Baghdad to Mosul	250 miles.
Baghdad to Rowunduz *viâ* Mosul	350 miles.
Baghdad to Rowunduz *viâ* Kifri	300 miles.

and you must add on 350 miles to these distances, viz., the distance of Baghdad from its base Basra, whereas the total area of the country is 207,000 square miles, or four-fifth the size of France.

On my arrival to take over command I found a very different situation had arisen to that which had been anticipated for the Air Control of Iraq at the Cairo Conference.

Our relations with Turkey and their victory over the Greeks had brought us to the verge of war and they were casting covetous eyes on their lost province of Mosul.

We had very definite indications that, should war break out, Mosul was most definitely one of their objectives. We calculated that within five weeks of the outbreak the Turks could bring 18,000, all arms, across the Mosul frontier.

There was a very distinct feeling throughout the country that we were not going to defend the vilayet and this had encouraged the large number of pro-Turk agitators in Baghdad and throughout Iraq.

It was difficult to ascertain what the policy of H.B.M.'s Government was in this matter, but I could find no operational plan or any indication that it was intended to do otherwise than leave the enemy a free passage to his objective.

At what point that free passage would stop was a matter of conjecture, but, one thing was quite clear, that, should the Mosul vilayet fall, the whole country would be against us and we should have had the utmost difficulty, if it were possible at all, to clear out to Basra.

In Kurdistan the situation had been deteriorating since 1919. For two years the Turks had been in occupation of Rowunduz, a place of great strategic importance by reason of its being the bottleneck through which roads from Turkey and Persia pass to this part of Kurdistan.

The upshot of various efforts by means of small levy column to restore our prestige was that in September—the month previous to my taking control—a column consisting of Indian Infantry and a Pack Battery and a mixed force of Levies had suffered a reverse at Rania, followed by our evacuation of Sulimania and the surrounding district.

Consequently, Turkish prestige was very much in the ascendant in Kurdistan, and in Iraq Turkish intrigue was busy on this account and in anticipation of our relinquishing the vilayet of Mosul under pressure of Turkish victories on the Anatolian front.

It is clear that the situation on the borders of Iraq was far from that anticipated at the Cairo Conference.

In order to stem this rising tide of hostility which, breaking on our borders, was already lapping at the heart of Iraq, I felt that a forceful movement of some sort was necessary

At hand I had an extremely mobile force in the shape of eight Squadrons of R.A.F., whose power to show the flag, and if necessary something more drastic, had up till now never been fully tested.

It was obviously impossible to deal with the Turks over their border beyond Mosul, but in Kurdistan it was another matter. There they had encroached on our country to such an extent that during the month of my arrival, they had reached and occupied Koisanjak, a town 70 miles within our border and only 30 miles from the line Erbil—Kirkuk, both of which were Administrative Headquarters of Government.

As their penetration into Kurdistan progressed it was the signal for all tribesmen to rally to their cause and openly defy both British and Iraqui. It was admitted that, with Koi in hostile hands, government at Erbil and Kirkuk was impossible. Koisanjak, therefore, was heavily bombed from Mosul and Kirkuk for five days. The Turks retired and our Police Forces entered on their heels and have been there ever since.

This was followed by air action wherever Turkish posts were located and was kept up throughout the winter on a front of 100 miles.

Coincident with this, three small Levy columns were organised from Amadia, Akra and Bira Kapra. The object in sending out these columns was two-fold :—

(*a*) To clear the country and show the tribesmen we intended to exert our authority;

(*b*) To accustom them to work with and get confidence in the co-operation of aircraft for a greater operation which I was planning for a later date.

They were successful in attaining the limited objects given.

Now, all these places are a very long way from Baghdad, speaking in terms of ground movements; but a few hours flight' kept one in constant touch with the progress of these operations and, in the precarious state in which Kurdistan was then, that was of vital importance.

In the meanwhile, by December, 1922, relations between Great Britain and Turkey had become very strained and it seemed that war with Turkey was probable. All detachments of regular troops had by now been drawn in and only where absolutely necessary were they relieved by Levies, namely, at Erbil, Kirkuk, Khanakin. This line constituted our outpost line against the Turkish-run province of Kurdistan, which was rightfully ours.

The total garrison of the country stood at 10,000 Regulars and Levies (including 8 Squadrons, 4 Armoured Car Companies, 4 Defence Vessels, R.A.F.) and 5,000 Iraq Army.

Of these we had at Mosul :—1 Ind. Battalion, 2 Batteries, 1 Squadron R.A.F., 1 A.C.Coy. and a small body of Levies and Arab Army.

The Turkish frontier is 90 miles from Mosul and we knew that for five months she had been concentrating troops and that within five

weeks of the outbreak of war she could concentrate 18 Turkish divisions for an advance on Mosul.

It had become necessary to decide whether, as had been envisaged in the past, we were to take what might appear to be the safe course, namely, retire from Mosul the small garrison we had there, which was obviously incapable of undertaking serious operations against a large force and to delay the advance with the bulk of the Air Forces which were in the country, or to adopt a forward policy.

In reply to various communications from Home, outlining a retirement from Mosul and the close defence of Baghdad, I sent the following cable, which I will read, as it gives all the reasons for adopting a forward policy :—

> " With reference to your letter No. S.1808/S.6 of 1st November, in this letter it is suggested that H.M. Government views with apprehension the forward offensive policy that is to be adopted in the event of Turkish aggression, and, further, that this policy may have to be considerably modified to one of defence in closer proximity to Baghdad. I wish to make the following remarks :—If, on an advance of Turkish forces, the Mosul area is abandoned, the consequence may prove disastrous to Iraq, as in all probability the whole country will rise against us. The advance of a Turkish Army of two or three divisions could be delayed, but not prevented, by the effect of Air action alone from Mosul. The inhabitants would take the sight of troops retiring from Mosul as a sign of defeat; the news of this, magnified a hundred-fold, would at once spread from Mosul to Basra. Air action would cease as the last troops left Mosul until the advancing enemy came within striking distance of an air base further South. Baghdad is the nearest base to Mosul from which any considerable concentration of Air action could be effected. Every hostile element, in the meantime, would have raised its banner, around which, at the news of the defeat of the British, all those who are now sitting on the fence would gather. This state of affairs would be aggravated by the sight of our supply dumps burning at Mosul and the retirement of the existing garrison therefrom. The march of this small force to Baghdad, under these circumstances, which are not overstated, would become an operation of extreme difficulty. Further, the Erbil—Kirkuk—Khanakin line becomes exposed when we retire from Mosul. The abandonment of this line would then follow as a necessary corollary, held, as it is, with the minimum of Levy Troops. Kurdistan would, therefore, be left to the Turk, and the reaction of this on the tribes between the above-mentioned line and the Tigris would have an anarchic effect. Baghdad would follow suit, and although the inhabitants of the city would be influenced by a closer defence of strongly defended points, as the enemy's advance drew near only a small

proportion of troops could be spared for the city itself; a situation of which full advantage would be taken. Communications would almost entirely cease between Baghdad and Basra as the railway track would certainly be torn up, leaving the river as the only line.

The following are the advantages of a forward policy as defined :—

1. North of Mosul and on the line of probable enemy advance the country on the left bank of the Tigris lends itself to a protracted defence and to counteroffensive against an enemy force equal or slightly superior to the one it is proposed to maintain there.
2. The *terrain* is eminently suited to rearguard action in case of an advance of greatly superior enemy numbers. Mosul would be one of the bounds in such a rearguard action, which would be continued, if necessary, to Baghdad and Basra. Unless it is the intention of H.M. Government to despatch reinforcements, it is not proposed that the force should remain at Baghdad to become invested.
3. Owing to the early intelligence provided by the Air forces, the probability of our forces being cut off is infinitesimal.
4. At intervals, behind a retiring force of these dimensions, a much larger concentration of Air Forces can be made than behind a force, carrying out a similar operation, of the size of the existing garrison at Mosul.
5. Our prestige amongst the tribes will be enhanced and the *morale* of our troops raised by the initial move North.
6. The germs of success are contained in this policy in that there is every possibility of severely hammering the enemy's advanced *échelon* to such an extent, while his base at Jezireh-Ibn-Omar and the remainder of his body are being dealt with by the Air Forces co-operating, that he might never recover. I would request that the above appreciation be carefully considered before I submit an alternative scheme as required in your letter under discussion, since, with the numbers of forces under my Command at present, I see no prospects of success in any other alternative. It is most essential that I should know the approximate numbers of reinforcements, if any, which H.M. Government have in mind, and the date on which the first *échelon* should reach Basra after the outbreak of war, if I am to consider further the close defence indicated. H.E. the High Commissioner is in agreement with this summary of the situation."

The reply received to this was that I must count on no reinforcements. But the Forward Policy was supported later to the fullest possible extent.

On 23rd January orders were issued for the Forward Movement and a fortnight later a force of—

6 Battalions, 2 Batteries—Regular; 1 Battalion, 1 Regiment,
1 Battery—Levies; 2 Cavalry Regts., 1 Battery—Iraq Army,

was concentrated at Mosul as a mobile striking Force under Col. Comdt. Vincent. This Force was accompanied by 5 Squadrons and 1 A.C. Company R.A.F.

The remainder of the Levies, under Col. Comdt. Dobbin, with the exception of 1 Battalion at Nasaryah, together with 1 Coy. A.C. and 1 Squadron R.A.F. were formed into a Frontier Force to protect the right flank. A tribal force of 2,000 Cavalry and Camelry were formed at El Hadhr and King Feisal put his entire army under my command.

The effect of this forward move was instantaneous: it settled the doubts of all waverers and dealt a serious blow to Turkish propaganda.

Col. Vincent adopted a policy of great activity, manœuvring, marching and countermarching, while Squadrons of R.A.F. swept the frontier daily from end to end.

If reported rumours of our strength may be believed, we had no less than an Army Corps and Air forces of immense strength ready to receive our enemies. In any event, it effectually put a stop to any idea of a *coup de main* on Mosul.

Now it was fully realised that, should hostilities break out, the forces at Mosul were strategically in a difficult position. As it was not the intention that they should engage greatly superior enemy forces, at the risk of becoming involved, certain factors now to be considered acted to minimise this risk.

Our command of the air, so often relative, was in this case absolute, for the enemy had little chance at the outset of concentrating any aircraft against us.

The nature of the ground did not lend itself in any way to the concealment of moving forces from air observation, and the chance that a force too formidable for us to engage could be concentrated against us without our knowledge was negligible.

The possible lines of approach for the enemy all lay through country particularly suitable for the employment of aircraft in direct attack upon ground targets. There can be no doubt that any advance against us would have been very seriously hindered and delayed during the early stages of concentration; and it is by no means unlikely that, as his line of supply lengthened out, the enemy would have found that his further advance had become a matter of the utmost difficulty.

With our ground troops we should then be in a position to deliver his advanced formations a severe blow.

In case, however, the enemy should advance against us in strength considered too great for our forces to engage with reasonable chance of success, plans were fully elaborated for their withdrawal, under cover of delaying Air action, to Baghdad, and, if necessary, straight through to Basrah.

All arrangements were similarly prepared in complete detail for the rapid collection along the main line of communication of the British and British subject population and for their evacuation to Basrah, to the number of some 6,000 persons.

It was at this time of the forward move to Mosul that air *liaison* was inaugurated with G.O.C.-in-C. the Army of the Levant, General Weygand, and by its means personal touch was maintained and Intelligence of mutual concern to both of us passed from one to the other.

In fact, an arrangement was come to whereby if the enemy crossed French territory in their advance on Mosul they would be attacked by the French forces in Syria. As in order to reach Mosul part of their force would inevitably cross French territory, this was a guarantee of some value if acted up to.

While these events were taking place the situation in Kurdistan had been rapidly deteriorating.

In February it became known that Sheikh Mahmoud, Governor of Sulimania, was formulating an attack on Kirkuk and Koisanjak and was in communication with Shiah Divines in the Holy Cities with the object of raising simultaneously a general insurrection in Iraq. For this purpose he had entered into an arrangement with Colonel Euzdemir, the Turkish Commander in Kurdistan.

This Sheikh Mahmoud, whose personality is continually cropping up in the Sulimania district of Kurdistan, is a clever, headstrong and fanatical leader of very unstable character. He had been reinstated as Governor of Sulimania after our evacuation; but, instead of fulfilling the *rôle* which the High Commissioner had allotted him, had soon become the tool of the Turkish Commander, who had dangled before his covetous eyes the kingship of an Independent Kurdish Province.

As soon as his intrigues came to light, he was summoned to Baghdad by His Excellency the High Commissioner, but refused to obey. As a precautionary measure, two companies of Indian Infantry were railed to Kingerban, whence they were flown to Kirkuk, traversing the marching route of six stages in a few hours.

An ultimatum was dropped to him, together with a few delay action bombs outside the town. These went off at 6-hour intervals and emphasised our decision to act should he refuse to comply.

Sheikh Mahmoud immediately resigned and sent a delegation of notables to Kirkuk. His protestations, however, proved to be meaningless and insincere and on the expiry of the ultimatum his quarters were bombed. He then fled to the hills, but continued to overawe Sulimania and to frustrate attempts to set up an alternative administration

At this moment a despatch from Euzdemir to the Turkish Commander of the Jezireh front was intercepted. This despatch disclosed plans for an attack on Arbil, Koisanjak and Kirkuk in conjunction with a general rising in Kurdistan. In it the complicity of Sheikh Mahmoud was confirmed.

Should, now, operations occur at Mosul, it would inevitably mean that the simmering cauldron in Kurdistan would boil over in our right rear. In that direction the few protective troops would soon be overrun and at sight of this the whole of the tribes in our immediate rear were likely to follow suit. It was an unpleasant position.

This situation called for urgent and drastic action. Meanwhile there were not sufficient troops to carry out operations on the Mosul front and in Kurdistan at the same time. It was now the beginning of March, and from information I received as to the attitude of Angora towards war, I judged it possible to transfer the bulk of the forces from Mosul for an operation against Kurdistan and to leave me time to bring them back should the situation again deteriorate.

I would like to make it clear and to emphasise that it was only made possible through the facilities offered by rapid air travel, to reach the decisions come to on this and other occasions, after conference with local civil administration, police and interviews with officers on the spot.

Without a proper gauge of the multifarious conditions and contingencies obtained in this way, over a very wide field, in my opinion it would have been both impossible, unwise and hazardous in the extreme to have embarked on the various operations we did with small forces at great distance, with little or no communications as the term is usually understood. Consequently, orders were issued on 18th March for the troops at Mosul to be formed into two columns :—

An Imperial Column, called Koicol., under command of Col. Comdt. Vincent, consisting of :—3 Inf. Bns., 1 Pack Battery, 1 Coy. Sappers and Miners, Ancillary Services, directed on Koisanjak; and

A Levy Column, called Frontiercol., under command of Col. Comdt. Dobbin, consisting of :—3 Inf. Bns., 1 Section Pack Batty., 1 Machine Gun Coy., directed on Rowunduz.

Air Forces for these columns were based on Mosul, Erbil and Kirkuk.

Iraq Army troops, although anxious to take part in the expected fighting, guarded adequately our communications.

The *rôle* of Koicol. on reaching Koisanjak was :—

(1) To overawe the turbulent tribes of the Rania plain, which had gained greatly in confidence and prestige consequent on the reverse inflicted on the Rania Column in September, 1922.
(2) To withdraw pressure from Frontiercol. during its advance on Rowunduz.
(3) To isolate Sheikh Mahmoud from the Turks.

My further intention was that, if all went well with Frontiercol., Koicol. could continue its advance from Koisanjak on Sulimania, Sheikh Mahmoud's stronghold. On the other hand, from Koisanjak it was in-

a position from which it could arrive on the flank of any force seriously threatening Frontiercol.

It will take too long to go into the details of these operations.

Frontiercol. came up against a very strong position, prepared by Euzdemir with all the usual Turkish skill. I considered it could not be taken without heavy loss to the attacking troops and accordingly decided that Koicol. should be diverted from Koisanjak to outflank it.

Accordingly, Koicol., which had already fought a successful action at Rania and recovered all the missing parts of two guns lost the previous year, turned N.W., fought another successful action at a most difficult position against a force of Turks and tribesmen, and outflanked the position held by Euzdemir across the path of Frontiercol. The Turks fled over the Persian border, where they were disarmed and interned, and Rowunduz was entered on 22nd April.

This was the first day of the meeting of the Lausanne Conference and we could henceforward substantiate our claim to the *status quo* in Kurdistan on which to such a very great degree would later depend the very existence of Iraq.

Frontiercol. remained at Rowunduz while Koicol. countermarched and was directed on Sulimania. Sulimania was occupied after a very rapid march on the 17th May. The organisation which Sheikh Mahmoud had painfully built was broken up by columns operating from that centre. Sheikh Mahmoud fled to the border and our Kurdistan operations had been brought to a successful conclusion.

The result of these operations was far-reaching. The Turkish correspondence which had been intercepted made it clear that their occupation of Rowunduz and their steady progress of infiltration was a stage in their plan to bring the whole of Kurdistan down to Khanakin under Turkish control.

By the beginning of June, all Turkish troops had been driven across the border into Persia. The tribal leaders, without exception, made haste to disavow their allegiance to the Turk and to comply with our requirements, and throughout the area a condition of respect for law and order and the decrees of Government supervened which these wild districts have never before known.

The following paragraph is an extract from a telegram forwarded by His Excellency the High Commissioner to the Secretary of State for the Colonies with regard to the effect of the forward move to Mosul and subsequent operations :—

> " It is difficult to exaggerate the improvement of the political situation effected during the past three months, first, by the move of troops to Mosul, and later by the successful operations in Kurdistan. The impression that the return of the Turks was imminent has now vanished and this has had great effect in Baghdad, Mosul and among the Euphrates tribes."

From this date it was possible gradually to effect those reductions in the total garrison which were to be effected under the R.A.F. Scheme of Control, until, in December of the same year, the Infantry garrison stood at 4 Bns. as envisaged by the Cairo Conference.

Before passing from these combined operations, I would like to describe to you some of the functions carried out by the R.A.F. beyond those normal ones of reconnaissance, photography, engagement of ground targets and bombing ahead of our columns.

By means of messages dropped and picked up, column commanders were enabled to communicate with each other, a vital matter in a turning movement of any description, and with my advanced H.Q. at Arbil, and this on the move when wireless was out of action. Air messages from columns to co-operating aircraft ensured that information of a special nature was received in quickest time.

At a most important juncture in the operations, when the junction of both converging columns was almost, but not quite, complete and it was necessary to very closely co-ordinate plans for a combined advance on Rowunduz, an appreciation and orders passed between the two columns by air message, and I received a copy at the same time.

At his march stages along the steep valley, O.C. Koicol. had established ration dumps under strong guard. It was essential for him to know in what regularity his supplies were passing. Aircraft provided this means and on one occasion dropped messages on each post in turn and in 2½ hours delivered replies to the column commander.

The rapidity with which this column was able to move was assisted by their employment on one or two occasions for picquetting heights; this saved the troops much exhaustion and consequently lessened the time and distance.

By a system of communication between picquetting posts and aircraft they were able to deal with snipers which were annoying the column and delaying its movement.

The wear and tear on boots and socks was prodigious, due to the steep climbing on rocky and rain-soaked ground. To meet this, 1,000 pairs of boots and 3,000 pairs of socks, together with a similar quantity of urgent stores, were supplied by air.

On one day, 4 tons of barley—that is, a day's ration—were dropped, but the breakable nature of the containers scattered the grain and it was not of much value. I am satisfied, however, that when this method of supplying has been more fully investigated and a cheap form of parachute has been properly tried out, this method of emergency supply will prove a valuable asset to a Commander in warfare of this type.

Some 200 dysentery and diarrhœa cases were evacuated to Baghdad, a distance of 200 miles. These must otherwise have had a six days' journey on donkeys and at the least have suffered severely.

Finally, from Advanced H.Q. at Erbil I was in intimate touch with both column commanders, with Mosul, the lines of communication,

and the High Commissioner in Baghdad. By a flight of between 500 and 600 miles in one day, I could ascertain by the best of all methods —personal interview—the situation on all fronts and what was passing through the minds of people on the spot, and I was never out of touch with the state of the Interior of Iraq through the High Commissioner.

In the meanwhile, what had been happening in the Interior, and how had the R.A.F. in purely Air operations, unaccompanied by mobile columns, been able to cope with their task? All sporadic attempts had been easily quelled—for instance, one of the most serious was that in which the British Div. Advisor in Diwanjah had been shot at and wounded while on tour. Orders to the Sheikh whose men had attempted the murder to come in to Government were ignored and Air action became necessary. After Air action had taken place, the Police, acting in co-operation with Aircraft, were able to enter his villages and deal satisfactorily with the incident.

I could quote other instances different in degree but similarly dealt with during the whole period of my command. Their total amounts to 288 occasions on which purely Air operations were undertaken apart from the combined operation in Kurdistan. The burthen of the story is the same. Air Power and that alone made it possible in this country of vast distances and primitive communications to hold all the strings at one moment, to tighten one here and loosen one there, and to act swiftly and surely at the right spot at the right moment.

Now, as the Turkish menace to our borders receded, so did the situation in Iraq proper improve. From July onwards to the end of my command last April there was only one outbreak of disorder in areas already under the administration of Government. Otherwise, those occasions on which active measures had to be taken were in areas where previously Government control had been only nominal. The very marked improvement in the situation generally throughout the country now made it possible for the Iraq Government to consolidate its position and bring certain unadministered areas under the regular system of administrative control.

This task at time engendered open defiance to Government officials or police or other emblems of authority, and so it happened in the area which lies between Rumaitha and Samawa on the Euphrates.

It is occupied by tribesmen who are well armed, good fighters, and with a long record of successful resistance to Government. In Turkish times it was always a plague spot and had remained so ever since, defying all comers and constituting a hot-bed of intrigue and trouble for the future.

The area is most inaccessible and so intersected with irrigation channels that it can be crossed only by pack animals. Any attempt to deal with it is complicated by the proximity of the Basrah—Baghdad Railway. During the rebellion of 1920 this line was torn up and I was particularly anxious that, if we undertook operations there again, this should not occur for reasons of prestige and public confidence.

It was generally agreed that it would not be possible to bring this area under control without recourse to active measures, and I was asked by the High Commissioner to consider the form it should take. I considered that this was about to be a more ticklish job than any the R.A.F. had hitherto undertaken.

Until, however, an ultimatum should be delivered, there was time to consider the problem in detail. The situation was thoroughly discussed with local British advisers and police, and by means of our Intelligence system we had knowledge of the location and character of the dwellings of each recalcitrant Sheikh.

It was our object to demonstrate that only those who refused to obey Government orders should be punished and of these those only who were responsible for the disloyalty of their followers. A special target map was accordingly prepared to ensure action being confined to these objectives.

The Sheikhs of the area, numbering 42, were then summoned to the local Headquarters of Government at Samawah. One only appeared with a satisfactory guarantee.

Accordingly, the following day, trains containing armoured car detachments, aircraft stores and ground organisation for three advanced aerodromes selected were despatched. Iraq Levies and Iraq army detachments guarded the two railway bridges and Samawah town.

Air action commenced the next morning and by the afternoon of the following day the majority of Sheikhs had surrendered. This was followed by the entry of Police and British and Iraqui Government officials into the area to establish Civil Administration. Thus this operation took two and a half days and was carried out at a distance of 150 miles from Baghdad.

Had it been necessary to use military forces, the nature of the country would have made it a lengthy and difficult operation: lines of communication in a hostile country would have had to be maintained and nothing less than a division, in my opinion, would have sufficed to bring about a similar result—and that only after inflicting immense hardship on the enemy and suffering many casualties among our own troops.

On no occasion was action taken in the Air which sooner or later would not have necessitated the despatch of a column.

I will not describe any more of these purely air operations, but I will draw your attention to what I consider an overpowering advantage of the type of warfare and an almost incredible fact.

The whole of the results were obtained at the expense of one casualty—dead—to our side. Add to these, 1 killed, 14 wounded in the combined Kurdistan operation, there emerges this consideration. (I am unable to tell you the exact number of the enemy casualties, but they were infinitesimal.)

Could we have wrested Kurdistan from the Turk—an operation considered too dangerous to undertake on the old system without a

very large increase in force—or imposed such a measure of control on the tribes of the interior that it became possible to reduce the garrison to 4 Bns. if the Air Arm had not been used as the primary Arm to bring about these results?

Would the suffering amongst the enemy or ourselves have been any less if slow moving columns had penetrated the country, suffering great hardships from heat and thirst if not from disease, laying waste in their track farms, homesteads and the life of the country, with the inevitable aftermath of famine to the inhabitants? I think you will agree that the answer must be in the negative.

Is Air Warfare humane? No. Because that is a paradox. But it is quicker, more efficient and is accompanied by infinitely less suffering than the older methods of waging war in semi-civilised countries.

Air action by the knowledge of its swiftness and certainty acts as a powerful deterrent to the tribesman. Although he may be many hundreds of miles away he knows that defiance of Government will surely be followed by retribution.

On the other hand, he knows very well that action by forces on the ground is slow to be taken. Expense, political necessity, lengthy and elaborate organisation are involved before an expedition into hostile country can be undertaken and tend to make its initiation a slow process, and of this he takes full advantage.

Thus, it is more usual to allow minor outbreaks to go unchecked until their cumulative effect makes the despatch of a column a necessity. And when at length the column is despatched, the process of restoring order involves the burning of entire villages, wholesale destruction and confiscation of livestock and almost inevitably also the loss of numerous lives, both of the tribesmen and our own troops.

How many hundreds of thousands of young British lives have been so sacrificed abroad and how many hearts have been broken at home by the old glorious methods of waging war?

And on the other side—What measure of order and tranquillity resulted to the country? This may be gauged by the fact that from the heterogeneous collection of wild and inarticulate tribes has emerged an ordered system of representative government by vote, with a Legislative Assembly elected by the people themselves.

DISCUSSION.

THE CHAIRMAN (Major-General Sir Percy Cox, G.C.M.G., G.C.I.E., K.C.S.I.): Would anyone like to start a discussion on this very interesting paper?

As no one rises, I take it that no one desires to discuss the paper, and it therefore only remains for me to say a few words before winding up the meeting. I was in Mesopotamia all through the War and thus was acquainted with the life-history of the Air Force in Mesopotamia from the start until Sir John Salmond's arrival to inaugurate the scheme of Air Force Control in Iraq. At the beginning the operations in Mesopotamia were regarded as a side issue to

the main theatre of the War, and, with the best intentions on the part of everyone concerned, we could only get the type of aeroplanes that were not being used and that could be spared from France and the other nearer theatres of the war; moreover the machines were very inadequate in numbers, and during that period there certainly was a natural inclination on the part of the Army in Iraq to gauge the potentialities of the air arm by what one or two machines could do under very unfavourable conditions. It was a new arm and, not unnaturally, one was inclined to be a little sceptical as to what aeroplanes could do by themselves. I have no doubt that I was among the number, but I kept an open mind. When Sir John Salmond arrived, there had been a good deal of development by his predecessors, but the Air Force was not in control. Aeroplanes did very fine work and were exceedingly useful, but they were not sufficient in numbers to be able to make good and consolidate what they had done.

They, however, rendered great service on numerous occasions in staving off trouble, which afterwards, if it had been allowed to develop, would have needed small expeditions all over the country. But there can be no question of the success of the Air Force Scheme as evolved in principle at the Conference in Cairo, and as worked by Sir John Salmond. It has succeeded wonderfully. I thank Sir John Salmond very much for the kind references he has made in his lecture to the co-operation which was afforded to him by myself, my officers and my successors. I think he will agree that we were quite ready to be persuaded that the Air Force could do the trick, and I think he has successfully proved that it can. To be successful it goes without saying that there must be adequate strength and proper types of machines; otherwise, they cannot be expected to play their full part.

If no one present wishes to enter into a discussion on the paper I have nothing more to do than to thank Sir John Salmond, on behalf of the Meeting, for a very informative and interesting paper.

The resolution of thanks was carried by acclamation.

Captain E. Altham, C.B., R.N. (Editor, *Journal of the R.U.S.I.*), proposed a vote of thanks to Sir Percy Cox for taking the Chair. This was carried by acclamation and the Meeting terminated.

TEHERAN
Barfurush
Kashan
Isfahan

Persian Gulf and the Turco-German power to organise a Jehad extending from Arabia to the Indus compelled us to embark on this campaign.

The brilliant victories of General Townshend led to the tragedy of Kut. The tragedy of Kut engendered the determination to wipe out the effects of this set-back and proceed to Baghdad. The fall of Baghdad and our operations round Mosul concluded the campaign and left us with the responsibility of that vast trackless desert region.

A manifesto by General Maude on entering Baghdad sets forth the undertaking of our responsibility towards the Arab natives of Mesopotamia, whom we had freed from the yoke of Turkish misrule after close upon 300 years.

During the course of the War, our Chairman, Sir Percy Cox, was Chief Political Officer to the Army Commander in Mesopotamia, and Civil Commissioner for internal affairs. As the *personnel* of the existing Turkish Administration always retired with the Turkish Army, it became his duty to establish Civil government under British Officers *pari passu* with our advance, whenever and wherever the military position had been sufficiently consolidated to admit of it.

On Sir Percy's deputation to Teheran in the autumn of 1918, the process was continued by his *locum tenens*, Sir A. T. Wilson, and developed after the Armistice. In 1920 a tribal rebellion having occurred which it cost a good deal of money to repress, His Majesty's Government and the British public began to think seriously of cutting their losses. In the result Sir Percy Cox was recalled from Persia to endeavour to set up national Arab Government under British guidance, as the only possible alternative to evacuation. On arrival in October, 1920, he established native government by a Council of Ministers under his own direction, and in 1921 the policy was further developed by the election of a King—in the person of Feisal, the third son of King Hussein, ex-ruler of the Hejaz.

The following year, Great Britain entered into Treaty relations with Iraq whereby we undertook to have the frontiers quickly delimited and to use our good offices to secure for Iraq membership of the League of Nations. On their side they bound themselves to abide by the advice of the High Commissioner in all matters international and financial and, as a condition for membership of the League, to carry into effect the "Organic Law," which provides for a limited monarchy consisting of the King, a nominated senate of "elder statesmen," and an elected Legislative Assembly.

By a Protocol of 1923 it was agreed that this Treaty should come to an end upon Iraq becoming a member of the League and in any case not later than four years after the ratification of Peace with Turkey. The Treaty of Lausanne was concluded in 1923, but this did not decide the northern frontier of Iraq, which was left to the decision of the League of Nations.

It seems to have always been, up to a few months ago, an expensive country to run, even in normal times. Under Turkish

sovereignty before the war, no less than 40,000, all arms, were kept as a permanent garrison. After the War, in the normal period of 1921, it cost 21 millions for the garrison of Imperial Forces and Levies. But now, with Air Force in control, it costs 3–4 millions. It was primarily the expense entailed to the British taxpayer in keeping large garrisons on a depleted exchequer that led this country into consideration of means whereby these burdens might be lightened.

It was advanced that the Army garrison could not be further reduced without grave risk, and yet it was obvious that, unless we were going to relinquish our Mandate, a very substantial decrease in the garrison must be made.

On the horns of this dilemma, the then Colonial Secretary, with characteristic imagination, conceived the idea of controlling this vast trackless area by aircraft, and summoned, in March, 1921, a Conference at Cairo to discuss his proposal.

It was there decided that the Military Control of Iraq should be in the hands of an Air Officer who would have command of all Military and Air Forces, including Levies; that the garrison should consist of:—

4 Battalions, 1 Pack Battery, 8 Squadrons R.A.F., 4 A.C. Coys. and 15,000 Irregulars.

The conditions under which it was considered that a garrison of this size could function were as follows:—

(*a*) The country should be free from organised rebellion, but liable to ordinary spasmodic disturbances.

(*b*) That there should be no imminence of danger from external attack.

In October, 1922, the control passed from the Military authorities, in whose hands it had been for several years, to the Air Force.

Now, the country for which the R.A.F. were taking responsibility is for the most part a vast alluvial plain, flat and completely stoneless, watered by the Euphrates and Tigris. The slope on this plain is so gradual that between Basra and Baghdad, a distance of 350 miles, the ground only rises about 100 feet. To the N. and N.E. it becomes more undulating till Kurdistan is reached, when it transforms to a country of high peaks and deep ravines similar to Switzerland or the N.W. Frontier.

There are no roads, only tracks, which become impassable in wet weather. The most important of these are Baghdad to Basra along the Tigris, and Baghdad to Mosul and Baghdad to Ramaidi on the outskirts of the Arabian Desert.

The two great rivers, Tigris and Euphrates, are navigable only for very shallow draft, and for ocean-going steamers to Basra, 70 miles up the Shatt-el-Arab.

The railway systems are Baghdad—Basra, metre gauge; Baghdad —Shergat, standard gauge; and Baghdad—Kifri, metre gauge. This latter is connected to the other metre gauge by waggon ferry. The

Constantinople railway runs to within 200 miles of Mosul and Nisibin. You will notice how great the distances are :—

Baghdad to Mosul	250 miles.
Baghdad to Rowunduz *viâ* Mosul	350 miles.
Baghdad to Rowunduz *viâ* Kifri	300 miles.

and you must add on 350 miles to these distances, viz., the distance of Baghdad from its base Basra, whereas the total area of the country is 207,000 square miles, or four-fifth the size of France.

On my arrival to take over command I found a very different situation had arisen to that which had been anticipated for the Air Control of Iraq at the Cairo Conference.

Our relations with Turkey and their victory over the Greeks had brought us to the verge of war and they were casting covetous eyes on their lost province of Mosul.

We had very definite indications that, should war break out, Mosul was most definitely one of their objectives. We calculated that within five weeks of the outbreak the Turks could bring 18,000, all arms, across the Mosul frontier.

There was a very distinct feeling throughout the country that we were not going to defend the vilayet and this had encouraged the large number of pro-Turk agitators in Baghdad and throughout Iraq.

It was difficult to ascertain what the policy of H.B.M.'s Government was in this matter, but I could find no operational plan or any indication that it was intended to do otherwise than leave the enemy a free passage to his objective.

At what point that free passage would stop was a matter of conjecture, but, one thing was quite clear, that, should the Mosul vilayet fall, the whole country would be against us and we should have had the utmost difficulty, if it were possible at all, to clear out to Basra.

In Kurdistan the situation had been deteriorating since 1919. For two years the Turks had been in occupation of Rowunduz, a place of great strategic importance by reason of its being the bottleneck through which roads from Turkey and Persia pass to this part of Kurdistan.

The upshot of various efforts by means of small levy column to restore our prestige was that in September—the month previous to my taking control—a column consisting of Indian Infantry and a Pack Battery and a mixed force of Levies had suffered a reverse at Rania, followed by our evacuation of Sulimania and the surrounding district.

Consequently, Turkish prestige was very much in the ascendant in Kurdistan, and in Iraq Turkish intrigue was busy on this account and in anticipation of our relinquishing the vilayet of Mosul under pressure of Turkish victories on the Anatolian front.

It is clear that the situation on the borders of Iraq was far from that anticipated at the Cairo Conference.

In order to stem this rising tide of hostility which, breaking on our borders, was already lapping at the heart of Iraq, I felt that a forœful movement of some sort was necessary

At hand I had an extremely mobile force in the shape of eight Squadrons of R.A.F., whose power to show the flag, and if necessary something more drastic, had up till now never been fully tested.

It was obviously impossible to deal with the Turks over their border beyond Mosul, but in Kurdistan it was another matter. There they had encroached on our country to such an extent that during the month of my arrival, they had reached and occupied Koisanjak, a town 70 miles within our border and only 30 miles from the line Erbil—Kirkuk, both of which were Administrative Headquarters of Government.

As their penetration into Kurdistan progressed it was the signal for all tribesmen to rally to their cause and openly defy both British and Iraqui. It was admitted that, with Koi in hostile hands, government at Erbil and Kirkuk was impossible. Koisanjak, therefore, was heavily bombed from Mosul and Kirkuk for five days. The Turks retired and our Police Forces entered on their heels and have been there ever since.

This was followed by air action wherever Turkish posts were located and was kept up throughout the winter on a front of 100 miles.

Coincident with this, three small Levy columns were organised from Amadia, Akra and Bira Kapra. The object in sending out these columns was two-fold :—

(*a*) To clear the country and show the tribesmen we intended to exert our authority;

(*b*) To accustom them to work with and get confidence in the co-operation of aircraft for a greater operation which I was planning for a later date.

They were successful in attaining the limited objects given.

Now, all these places are a very long way from Baghdad, speaking in terms of ground movements; but a few hours flight' kept one in constant touch with the progress of these operations and, in the precarious state in which Kurdistan was then, that was of vital importance.

In the meanwhile, by December, 1922, relations between Great Britain and Turkey had become very strained and it seemed that war with Turkey was probable. All detachments of regular troops had by now been drawn in and only where absolutely necessary were they relieved by Levies, namely, at Erbil, Kirkuk, Khanakin. This line constituted our outpost line against the Turkish-run province of Kurdistan, which was rightfully ours.

The total garrison of the country stood at 10,000 Regulars and Levies (including 8 Squadrons, 4 Armoured Car Companies, 4 Defence Vessels, R.A.F.) and 5,000 Iraq Army.

Of these we had at Mosul :—1 Ind. Battalion, 2 Batteries, 1 Squadron R.A.F., 1 A.C.Coy. and a small body of Levies and Arab Army.

The Turkish frontier is 90 miles from Mosul and we knew that for five months she had been concentrating troops and that within five

weeks of the outbreak of war she could concentrate 18 Turkish divisions for an advance on Mosul.

It had become necessary to decide whether, as had been envisaged in the past, we were to take what might appear to be the safe course, namely, retire from Mosul the small garrison we had there, which was obviously incapable of undertaking serious operations against a large force and to delay the advance with the bulk of the Air Forces which were in the country, or to adopt a forward policy.

In reply to various communications from Home, outlining a retirement from Mosul and the close defence of Baghdad, I sent the following cable, which I will read, as it gives all the reasons for adopting a forward policy :—

> " With reference to your letter No. S.1808/S.6 of 1st November, in this letter it is suggested that H.M. Government views with apprehension the forward offensive policy that is to be adopted in the event of Turkish aggression, and, further, that this policy may have to be considerably modified to one of defence in closer proximity to Baghdad. I wish to make the following remarks :—If, on an advance of Turkish forces, the Mosul area is abandoned, the consequence may prove disastrous to Iraq, as in all probability the whole country will rise against us. The advance of a Turkish Army of two or three divisions could be delayed, but not prevented, by the effect of Air action alone from Mosul. The inhabitants would take the sight of troops retiring from Mosul as a sign of defeat; the news of this, magnified a hundred-fold, would at once spread from Mosul to Basra. Air action would cease as the last troops left Mosul until the advancing enemy came within striking distance of an air base further South. Baghdad is the nearest base to Mosul from which any considerable concentration of Air action could be effected. Every hostile element, in the meantime, would have raised its banner, around which, at the news of the defeat of the British, all those who are now sitting on the fence would gather. This state of affairs would be aggravated by the sight of our supply dumps burning at Mosul and the retirement of the existing garrison therefrom. The march of this small force to Baghdad, under these circumstances, which are not overstated, would become an operation of extreme difficulty. Further, the Erbil—Kirkuk—Khanakin line becomes exposed when we retire from Mosul. The abandonment of this line would then follow as a necessary corollary, held, as it is, with the minimum of Levy Troops. Kurdistan would, therefore, be left to the Turk, and the reaction of this on the tribes between the above-mentioned line and the Tigris would have an anarchic effect. Baghdad would follow suit, and although the inhabitants of the city would be influenced by a closer defence of strongly defended points, as the enemy's advance drew near only a small

proportion of troops could be spared for the city itself; a situation of which full advantage would be taken. Communications would almost entirely cease between Baghdad and Basra as the railway track would certainly be torn up, leaving the river as the only line.

The following are the advantages of a forward policy as defined :—

1. North of Mosul and on the line of probable enemy advance the country on the left bank of the Tigris lends itself to a protracted defence and to counteroffensive against an enemy force equal or slightly superior to the one it is proposed to maintain there.
2. The *terrain* is eminently suited to rearguard action in case of an advance of greatly superior enemy numbers. Mosul would be one of the bounds in such a rearguard action, which would be continued, if necessary, to Baghdad and Basra. Unless it is the intention of H.M. Government to despatch reinforcements, it is not proposed that the force should remain at Baghdad to become invested.
3. Owing to the early intelligence provided by the Air forces, the probability of our forces being cut off is infinitesimal.
4. At intervals, behind a retiring force of these dimensions, a much larger concentration of Air Forces can be made than behind a force, carrying out a similar operation, of the size of the existing garrison at Mosul.
5. Our prestige amongst the tribes will be enhanced and the *morale* of our troops raised by the initial move North.
6. The germs of success are contained in this policy in that there is every possibility of severely hammering the enemy's advanced *échelon* to such an extent, while his base at Jezireh-Ibn-Omar and the remainder of his body are being dealt with by the Air Forces co-operating, that he might never recover. I would request that the above appreciation be carefully considered before I submit an alternative scheme as required in your letter under discussion, since, with the numbers of forces under my Command at present, I see no prospects of success in any other alternative. It is most essential that I should know the approximate numbers of reinforcements, if any, which H.M. Government have in mind, and the date on which the first *échelon* should reach Basra after the outbreak of war, if I am to consider further the close defence indicated. H.E. the High Commissioner is in agreement with this summary of the situation."

The reply received to this was that I must count on no reinforcements. But the Forward Policy was supported later to the fullest possible extent.

On 23rd January orders were issued for the Forward Movement and a fortnight later a force of—

6 Battalions, 2 Batteries—Regular; 1 Battalion, 1 Regiment, 1 Battery—Levies; 2 Cavalry Regts., 1 Battery—Iraq Army,

was concentrated at Mosul as a mobile striking Force under Col. Comdt. Vincent. This Force was accompanied by 5 Squadrons and 1 A.C. Company R.A.F.

The remainder of the Levies, under Col. Comdt. Dobbin, with the exception of 1 Battalion at Nasaryah, together with 1 Coy. A.C. and 1 Squadron R.A.F. were formed into a Frontier Force to protect the right flank. A tribal force of 2,000 Cavalry and Camelry were formed at El Hadhr and King Feisal put his entire army under my command.

The effect of this forward move was instantaneous: it settled the doubts of all waverers and dealt a serious blow to Turkish propaganda.

Col. Vincent adopted a policy of great activity, manœuvring, marching and countermarching, while Squadrons of R.A.F. swept the frontier daily from end to end.

If reported rumours of our strength may be believed, we had no less than an Army Corps and Air forces of immense strength ready to receive our enemies. In any event, it effectually put a stop to any idea of a *coup de main* on Mosul.

Now it was fully realised that, should hostilities break out, the forces at Mosul were strategically in a difficult position. As it was not the intention that they should engage greatly superior enemy forces, at the risk of becoming involved, certain factors now to be considered acted to minimise this risk.

Our command of the air, so often relative, was in this case absolute, for the enemy had little chance at the outset of concentrating any aircraft against us.

The nature of the ground did not lend itself in any way to the concealment of moving forces from air observation, and the chance that a force too formidable for us to engage could be concentrated against us without our knowledge was negligible.

The possible lines of approach for the enemy all lay through country particularly suitable for the employment of aircraft in direct attack upon ground targets. There can be no doubt that any advance against us would have been very seriously hindered and delayed during the early stages of concentration; and it is by no means unlikely that, as his line of supply lengthened out, the enemy would have found that his further advance had become a matter of the utmost difficulty.

With our ground troops we should then be in a position to deliver his advanced formations a severe blow.

In case, however, the enemy should advance against us in strength considered too great for our forces to engage with reasonable chance of success, plans were fully elaborated for their withdrawal, under cover of delaying Air action, to Baghdad, and, if necessary, straight through to Basrah.

All arrangements were similarly prepared in complete detail for the rapid collection along the main line of communication of the British and British subject population and for their evacuation to Basrah, to the number of some 6,000 persons.

It was at this time of the forward move to Mosul that air *liaison* was inaugurated with G.O.C.-in-C. the Army of the Levant, General Weygand, and by its means personal touch was maintained and Intelligence of mutual concern to both of us passed from one to the other.

In fact, an arrangement was come to whereby if the enemy crossed French territory in their advance on Mosul they would be attacked by the French forces in Syria. As in order to reach Mosul part of their force would inevitably cross French territory, this was a guarantee of some value if acted up to.

While these events were taking place the situation in Kurdistan had been rapidly deteriorating.

In February it became known that Sheikh Mahmoud, Governor of Sulimania, was formulating an attack on Kirkuk and Koisanjak and was in communication with Shiah Divines in the Holy Cities with the object of raising simultaneously a general insurrection in Iraq. For this purpose he had entered into an arrangement with Colonel Euzdemir, the Turkish Commander in Kurdistan.

This Sheikh Mahmoud, whose personality is continually cropping up in the Sulimania district of Kurdistan, is a clever, headstrong and fanatical leader of very unstable character. He had been reinstated as Governor of Sulimania after our evacuation; but, instead of fulfilling the *rôle* which the High Commissioner had allotted him, had soon become the tool of the Turkish Commander, who had dangled before his covetous eyes the kingship of an Independent Kurdish Province.

As soon as his intrigues came to light, he was summoned to Baghdad by His Excellency the High Commissioner, but refused to obey. As a precautionary measure, two companies of Indian Infantry were railed to Kingerban, whence they were flown to Kirkuk, traversing the marching route of six stages in a few hours.

An ultimatum was dropped to him, together with a few delay action bombs outside the town. These went off at 6-hour intervals and emphasised our decision to act should he refuse to comply.

Sheikh Mahmoud immediately resigned and sent a delegation of notables to Kirkuk. His protestations, however, proved to be meaningless and insincere and on the expiry of the ultimatum his quarters were bombed. He then fled to the hills, but continued to overawe Sulimania and to frustrate attempts to set up an alternative administration

At this moment a despatch from Euzdemir to the Turkish Commander of the Jezireh front was intercepted. This despatch disclosed plans for an attack on Arbil, Koisanjak and Kirkuk in conjunction with a general rising in Kurdistan. In it the complicity of Sheikh Mahmoud was confirmed.

Should, now, operations occur at Mosul, it would inevitably mean that the simmering cauldron in Kurdistan would boil over in our right rear. In that direction the few protective troops would soon be overrun and at sight of this the whole of the tribes in our immediate rear were likely to follow suit. It was an unpleasant position.

This situation called for urgent and drastic action. Meanwhile there were not sufficient troops to carry out operations on the Mosul front and in Kurdistan at the same time. It was now the beginning of March, and from information I received as to the attitude of Angora towards war, I judged it possible to transfer the bulk of the forces from Mosul for an operation against Kurdistan and to leave me time to bring them back should the situation again deteriorate.

I would like to make it clear and to emphasise that it was only made possible through the facilities offered by rapid air travel, to reach the decisions come to on this and other occasions, after conference with local civil administration, police and interviews with officers on the spot.

Without a proper gauge of the multifarious conditions and contingencies obtained in this way, over a very wide field, in my opinion it would have been both impossible, unwise and hazardous in the extreme to have embarked on the various operations we did with small forces at great distance, with little or no communications as the term is usually understood. Consequently, orders were issued on 18th March for the troops at Mosul to be formed into two columns :—

An Imperial Column, called Koicol., under command of Col. Comdt. Vincent, consisting of :—3 Inf. Bns., 1 Pack Battery, 1 Coy. Sappers and Miners, Ancillary Services, directed on Koisanjak; and

A Levy Column, called Frontiercol., under command of Col. Comdt. Dobbin, consisting of :—3 Inf. Bns., 1 Section Pack Batty., 1 Machine Gun Coy., directed on Rowunduz.

Air Forces for these columns were based on Mosul, Erbil and Kirkuk.

Iraq Army troops, although anxious to take part in the expected fighting, guarded adequately our communications.

The *rôle* of Koicol. on reaching Koisanjak was :—

(1) To overawe the turbulent tribes of the Rania plain, which had gained greatly in confidence and prestige consequent on the reverse inflicted on the Rania Column in September, 1922.
(2) To withdraw pressure from Frontiercol. during its advance on Rowunduz.
(3) To isolate Sheikh Mahmoud from the Turks.

My further intention was that, if all went well with Frontiercol., Koicol. could continue its advance from Koisanjak on Sulimania, Sheikh Mahmoud's stronghold. On the other hand, from Koisanjak it was in-

a position from which it could arrive on the flank of any force seriously threatening Frontiercol.

It will take too long to go into the details of these operations.

Frontiercol. came up against a very strong position, prepared by Euzdemir with all the usual Turkish skill. I considered it could not be taken without heavy loss to the attacking troops and accordingly decided that Koicol. should be diverted from Koisanjak to outflank it.

Accordingly, Koicol., which had already fought a successful action at Rania and recovered all the missing parts of two guns lost the previous year, turned N.W., fought another successful action at a most difficult position against a force of Turks and tribesmen, and outflanked the position held by Euzdemir across the path of Frontiercol. The Turks fled over the Persian border, where they were disarmed and interned, and Rowunduz was entered on 22nd April.

This was the first day of the meeting of the Lausanne Conference and we could henceforward substantiate our claim to the *status quo* in Kurdistan on which to such a very great degree would later depend the very existence of Iraq.

Frontiercol. remained at Rowunduz while Koicol. countermarched and was directed on Sulimania. Sulimania was occupied after a very rapid march on the 17th May. The organisation which Sheikh Mahmoud had painfully built was broken up by columns operating from that centre. Sheikh Mahmoud fled to the border and our Kurdistan operations had been brought to a successful conclusion.

The result of these operations was far-reaching. The Turkish correspondence which had been intercepted made it clear that their occupation of Rowunduz and their steady progress of infiltration was a stage in their plan to bring the whole of Kurdistan down to Khanakin under Turkish control.

By the beginning of June, all Turkish troops had been driven across the border into Persia. The tribal leaders, without exception, made haste to disavow their allegiance to the Turk and to comply with our requirements, and throughout the area a condition of respect for law and order and the decrees of Government supervened which these wild districts have never before known.

The following paragraph is an extract from a telegram forwarded by His Excellency the High Commissioner to the Secretary of State for the Colonies with regard to the effect of the forward move to Mosul and subsequent operations :—

> "It is difficult to exaggerate the improvement of the political situation effected during the past three months, first, by the move of troops to Mosul, and later by the successful operations in Kurdistan. The impression that the return of the Turks was imminent has now vanished and this has had great effect in Baghdad, Mosul and among the Euphrates tribes."

From this date it was possible gradually to effect those reductions in the total garrison which were to be effected under the R.A.F. Scheme of Control, until, in December of the same year, the Infantry garrison stood at 4 Bns. as envisaged by the Cairo Conference.

Before passing from these combined operations, I would like to describe to you some of the functions carried out by the R.A.F. beyond those normal ones of reconnaissance, photography, engagement of ground targets and bombing ahead of our columns.

By means of messages dropped and picked up, column commanders were enabled to communicate with each other, a vital matter in a turning movement of any description, and with my advanced H.Q. at Arbil, and this on the move when wireless was out of action. Air messages from columns to co-operating aircraft ensured that information of a special nature was received in quickest time.

At a most important juncture in the operations, when the junction of both converging columns was almost, but not quite, complete and it was necessary to very closely co-ordinate plans for a combined advance on Rowunduz, an appreciation and orders passed between the two columns by air message, and I received a copy at the same time.

At his march stages along the steep valley, O.C. Koicol. had established ration dumps under strong guard. It was essential for him to know in what regularity his supplies were passing. Aircraft provided this means and on one occasion dropped messages on each post in turn and in 2½ hours delivered replies to the column commander.

The rapidity with which this column was able to move was assisted by their employment on one or two occasions for picquetting heights; this saved the troops much exhaustion and consequently lessened the time and distance.

By a system of communication between picquetting posts and aircraft they were able to deal with snipers which were annoying the column and delaying its movement.

The wear and tear on boots and socks was prodigious, due to the steep climbing on rocky and rain-soaked ground. To meet this, 1,000 pairs of boots and 3,000 pairs of socks, together with a similar quantity of urgent stores, were supplied by air.

On one day, 4 tons of barley—that is, a day's ration—were dropped, but the breakable nature of the containers scattered the grain and it was not of much value. I am satisfied, however, that when this method of supplying has been more fully investigated and a cheap form of parachute has been properly tried out, this method of emergency supply will prove a valuable asset to a Commander in warfare of this type.

Some 200 dysentery and diarrhœa cases were evacuated to Baghdad, a distance of 200 miles. These must otherwise have had a six days' journey on donkeys and at the least have suffered severely.

Finally, from Advanced H.Q. at Erbil I was in intimate touch with both column commanders, with Mosul, the lines of communication,

and the High Commissioner in Baghdad. By a flight of between 500 and 600 miles in one day, I could ascertain by the best of all methods —personal interview—the situation on all fronts and what was passing through the minds of people on the spot, and I was never out of touch with the state of the Interior of Iraq through the High Commissioner.

In the meanwhile, what had been happening in the Interior, and how had the R.A.F. in purely Air operations, unaccompanied by mobile columns, been able to cope with their task? All sporadic attempts had been easily quelled—for instance, one of the most serious was that in which the British Div. Advisor in Diwanjah had been shot at and wounded while on tour. Orders to the Sheikh whose men had attempted the murder to come in to Government were ignored and Air action became necessary. After Air action had taken place, the Police, acting in co-operation with Aircraft, were able to enter his villages and deal satisfactorily with the incident.

I could quote other instances different in degree but similarly dealt with during the whole period of my command. Their total amounts to 288 occasions on which purely Air operations were undertaken apart from the combined operation in Kurdistan. The burthen of the story is the same. Air Power and that alone made it possible in this country of vast distances and primitive communications to hold all the strings at one moment, to tighten one here and loosen one there, and to act swiftly and surely at the right spot at the right moment.

Now, as the Turkish menace to our borders receded, so did the situation in Iraq proper improve. From July onwards to the end of my command last April there was only one outbreak of disorder in areas already under the administration of Government. Otherwise, those occasions on which active measures had to be taken were in areas where previously Government control had been only nominal. The very marked improvement in the situation generally throughout the country now made it possible for the Iraq Government to consolidate its position and bring certain unadministered areas under the regular system of administrative control.

This task at time engendered open defiance to Government officials or police or other emblems of authority, and so it happened in the area which lies between Rumaitha and Samawa on the Euphrates.

It is occupied by tribesmen who are well armed, good fighters, and with a long record of successful resistance to Government. In Turkish times it was always a plague spot and had remained so ever since, defying all comers and constituting a hot-bed of intrigue and trouble for the future.

The area is most inaccessible and so intersected with irrigation channels that it can be crossed only by pack animals. Any attempt to deal with it is complicated by the proximity of the Basrah—Baghdad Railway. During the rebellion of 1920 this line was torn up and I was particularly anxious that, if we undertook operations there again, this should not occur for reasons of prestige and public confidence.

It was generally agreed that it would not be possible to bring this area under control without recourse to active measures, and I was asked by the High Commissioner to consider the form it should take. I considered that this was about to be a more ticklish job than any the R.A.F. had hitherto undertaken.

Until, however, an ultimatum should be delivered, there was time to consider the problem in detail. The situation was thoroughly discussed with local British advisers and police, and by means of our Intelligence system we had knowledge of the location and character of the dwellings of each recalcitrant Sheikh.

It was our object to demonstrate that only those who refused to obey Government orders should be punished and of these those only who were responsible for the disloyalty of their followers. A special target map was accordingly prepared to ensure action being confined to these objectives.

The Sheikhs of the area, numbering 42, were then summoned to the local Headquarters of Government at Samawah. One only appeared with a satisfactory guarantee.

Accordingly, the following day, trains containing armoured car detachments, aircraft stores and ground organisation for three advanced aerodromes selected were despatched. Iraq Levies and Iraq army detachments guarded the two railway bridges and Samawah town.

Air action commenced the next morning and by the afternoon of the following day the majority of Sheikhs had surrendered. This was followed by the entry of Police and British and Iraqui Government officials into the area to establish Civil Administration. Thus this operation took two and a half days and was carried out at a distance of 150 miles from Baghdad.

Had it been necessary to use military forces, the nature of the country would have made it a lengthy and difficult operation: lines of communication in a hostile country would have had to be maintained and nothing less than a division, in my opinion, would have sufficed to bring about a similar result—and that only after inflicting immense hardship on the enemy and suffering many casualties among our own troops.

On no occasion was action taken in the Air which sooner or later would not have necessitated the despatch of a column.

I will not describe any more of these purely air operations, but I will draw your attention to what I consider an overpowering advantage of the type of warfare and an almost incredible fact.

The whole of the results were obtained at the expense of one casualty—dead—to our side. Add to these, 1 killed, 14 wounded in the combined Kurdistan operation, there emerges this consideration. (I am unable to tell you the exact number of the enemy casualties, but they were infinitesimal.)

Could we have wrested Kurdistan from the Turk—an operation considered too dangerous to undertake on the old system without a

very large increase in force—or imposed such a measure of control on the tribes of the interior that it became possible to reduce the garrison to 4 Bns. if the Air Arm had not been used as the primary Arm to bring about these results?

Would the suffering amongst the enemy or ourselves have been any less if slow moving columns had penetrated the country, suffering great hardships from heat and thirst if not from disease, laying waste in their track farms, homesteads and the life of the country, with the inevitable aftermath of famine to the inhabitants? I think you will agree that the answer must be in the negative.

Is Air Warfare humane? No. Because that is a paradox. But it is quicker, more efficient and is accompanied by infinitely less suffering than the older methods of waging war in semi-civilised countries.

Air action by the knowledge of its swiftness and certainty acts as a powerful deterrent to the tribesman. Although he may be many hundreds of miles away he knows that defiance of Government will surely be followed by retribution.

On the other hand, he knows very well that action by forces on the ground is slow to be taken. Expense, political necessity, lengthy and elaborate organisation are involved before an expedition into hostile country can be undertaken and tend to make its initiation a slow process, and of this he takes full advantage.

Thus, it is more usual to allow minor outbreaks to go unchecked until their cumulative effect makes the despatch of a column a necessity. And when at length the column is despatched, the process of restoring order involves the burning of entire villages, wholesale destruction and confiscation of livestock and almost inevitably also the loss of numerous lives, both of the tribesmen and our own troops.

How many hundreds of thousands of young British lives have been so sacrificed abroad and how many hearts have been broken at home by the old glorious methods of waging war?

And on the other side—What measure of order and tranquillity resulted to the country? This may be gauged by the fact that from the heterogeneous collection of wild and inarticulate tribes has emerged an ordered system of representative government by vote, with a Legislative Assembly elected by the people themselves.

DISCUSSION.

THE CHAIRMAN (Major-General Sir Percy Cox, G.C.M.G., G.C.I.E., K.C.S.I.): Would anyone like to start a discussion on this very interesting paper?

As no one rises, I take it that no one desires to discuss the paper, and it therefore only remains for me to say a few words before winding up the meeting. I was in Mesopotamia all through the War and thus was acquainted with the life-history of the Air Force in Mesopotamia from the start until Sir John Salmond's arrival to inaugurate the scheme of Air Force Control in Iraq. At the beginning the operations in Mesopotamia were regarded as a side issue to

the main theatre of the War, and, with the best intentions on the part of everyone concerned, we could only get the type of aeroplanes that were not being used and that could be spared from France and the other nearer theatres of the war; moreover the machines were very inadequate in numbers, and during that period there certainly was a natural inclination on the part of the Army in Iraq to gauge the potentialities of the air arm by what one or two machines could do under very unfavourable conditions. It was a new arm and, not unnaturally, one was inclined to be a little sceptical as to what aeroplanes could do by themselves. I have no doubt that I was among the number, but I kept an open mind. When Sir John Salmond arrived, there had been a good deal of development by his predecessors, but the Air Force was not in control. Aeroplanes did very fine work and were exceedingly useful, but they were not sufficient in numbers to be able to make good and consolidate what they had done.

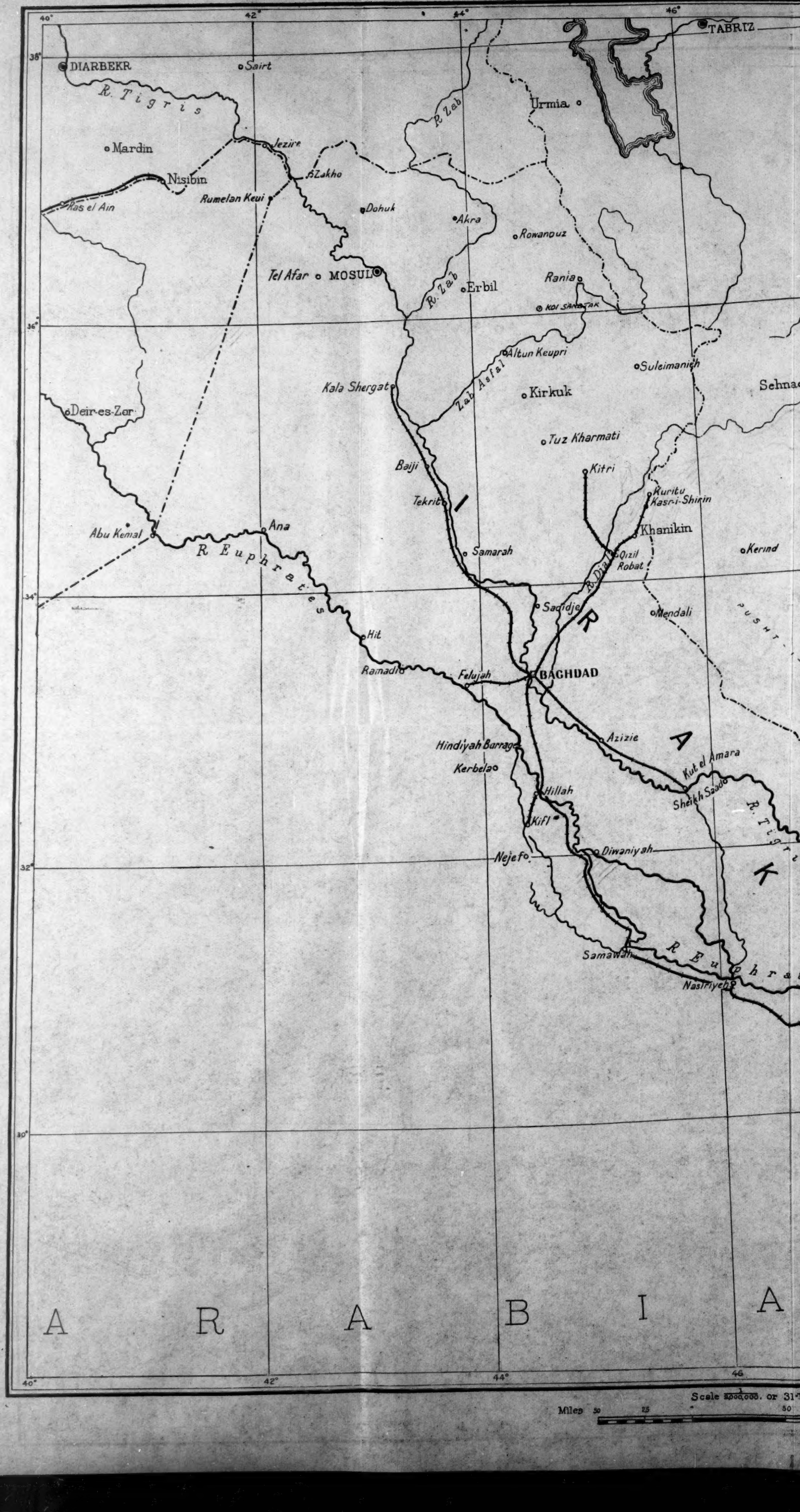
They, however, rendered great service on numerous occasions in staving off trouble, which afterwards, if it had been allowed to develop, would have needed small expeditions all over the country. But there can be no question of the success of the Air Force Scheme as evolved in principle at the Conference in Cairo, and as worked by Sir John Salmond. It has succeeded wonderfully. I thank Sir John Salmond very much for the kind references he has made in his lecture to the co-operation which was afforded to him by myself, my officers and my successors. I think he will agree that we were quite ready to be persuaded that the Air Force could do the trick, and I think he has successfully proved that it can. To be successful it goes without saying that there must be adequate strength and proper types of machines; otherwise, they cannot be expected to play their full part.

If no one present wishes to enter into a discussion on the paper I have nothing more to do than to thank Sir John Salmond, on behalf of the Meeting, for a very informative and interesting paper.

The resolution of thanks was carried by acclamation.

CAPTAIN E. ALTHAM, C.B., R.N. (Editor, *Journal of the R.U.S.I.*), proposed a vote of thanks to Sir Percy Cox for taking the Chair. This was carried by acclamation and the Meeting terminated.

IRAK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May 1921
Corrections Nov. 1922

AIRSHIP WORK FOR THE NAVY, 1914–1918.

By CAPTAIN J. F. HART, D.S.C., late R.A.F.,
late Flight-Lieutenant R.N.A.S.

THE part played by British airships during the late War in protecting our merchant shipping made them an exceedingly valuable, and as the war progressed, a very necessary, auxiliary to the Royal Navy. Little was heard of them at the time, for their work was necessarily kept secret, and the years since the War have done little to lift the veil of obscurity behind which they were still immured at its close. This was due in a large measure to the fact that, soon after the cessation of hostilities, the airship was abandoned as an integral part of the fighting forces. And although the flight across the Atlantic by the "R. 34" amply demonstrated their commercial possibilities, private capital was lacking and a Government already in the throes of retrenchment was unable to grant the necessary subsidy.

Fortunately the Admiralty, in due course, rediscovered their potentialities for future naval warfare, and this has led to the resuscitation of lighter-than-air craft. A short history of British airships' work for the Navy during the War may, therefore, be of interest.

TYPES OF AIRSHIPS.

It may be as well, first of all, to make it clear that airship construction is divided into three categories, viz.: non-rigid, semi-rigid and rigid. Briefly, the first type mentioned consists of a fabric envelope, to which a car is attached by means of wire suspensions. The semi-rigid differs only in the respect that a rigid framework running fore and aft along the bottom of the envelope acts as a stiffening medium between it and the car. With the general characteristics of the rigid we are all more or less familiar. Suffice it to say that instead of the collapsible envelope of the non-rigid, a framework of girders, composed of a light but strong metal alloy, house many separate gas-bags. The cars or gondolas are rigidly attached to this frame.

The first British airship, the "Nulli Secundus," took the air in 1907. It was constructed by the Army, who can thus claim the credit of being the pioneers of airships in this country. The "Nulli Secundus" belonged to the semi-rigid type, but this system of construction was soon abandoned and thence forward, British airships were either rigids or non-rigids.

It was soon realised that, whereas the airship could be of inestimable value as an auxiliary to the Navy, it could only be of very limited use

to the Sister Service. This was confirmed both by our own experience during the War and also by that of the Germans, who soon decided that airships were unsuitable for land warfare. In 1913 the Navy took over the remaining Army airships, and the outbreak of war found the former in possession of seven. These were all of the non-rigid type. Our only pre-War experiment with the rigid type of construction ended in disaster, the Naval rigid "Mayfly" breaking its back as it left its shed at Barrow. This took place in 1911, and after this misfortune no rigid was constructed in this country until December, 1916. The result was that Germany was ahead of us with this type by the large margin of twelve years. But by 1918 four rigids were in commission. These had been designed largely from the useful data compiled from the wreckage of Zeppelins brought down in England.

It is obvious from the foregoing that the burden of our airship work during the war fell almost entirely on the non-rigid class. They were eminently suitable for the kind of work which they were called upon to perform, but the need of a really efficient scout for the Fleet, able to operate long distances from its base, became very apparent. Such a need could only be filled adequately by a rigid. The German fleet made extensive use of their Zeppelins for reconnaissance purposes—work which was considered by their Naval staff to be the primary duty of these aircraft.

The Non-Rigids were ultimately confined to two classes of construction: those with the "Eta patch" system of rigging and named after the original Army airship "Eta," and the "Astra Torres." The former were rigged externally, *i.e.*, the suspension wires were attached to patches on the sides of an envelope of stream-line design. The Submarine Scout class, commonly known as "Blimps," came under this category. The "Astra Torres" type envelope was trilobe in shape, allowing an internal system of rigging to be used with the object of minimising wind resistance. End-on, the "Astra Torres" gives the appearance of the Ace of Clubs. The "Coastal," the "Coastal*", and the North Sea airships were of this type.

The first Submarine Scout was constructed in 1915. It was hybrid, utilising the *chassis* of a B.E. 2C aeroplane as a car. An improvement on this type, the "S.S. Zero," followed on its heels, and, possessing as it did a specially designed car to hold a crew of three, gave more efficient results. A little later the "S.S. Twin" made its appearance, carrying, as its name implies, two engines. The "Coastal," a contemporary type of the S.S., also carried two engines, placed fore and aft of the *chassis*. This type also possessed a tube through the envelope, that gave access to a gun-platform on top. A later and improved edition of the "Coastal" became known as the "Coastal*." The largest of the non-rigids were of the North Sea type—craft designed primarily as scouts for the Fleet. Two large engines in separate gondolas supplied the motive power. The ample supplies of fuel carried allowed patrols of about 24 hours' duration to be undertaken. Soon after the signing of the Armistice

one such ship made a flight of 61 hours 21 minutes—a record for a non-rigid.

The following table will give an idea of the respective sizes of the different types enumerated above :—

Name.	Length.	Width.	Height.	Capacity.	Crew.
Submarine Scout class :—					
"S.S.Z." -	143′ 0″	32′ 0″	46′ 0″	70,000 c.f.	3
"S.S.T." -	165′ 0″	35′ 6″	49′ 0″	100,000 c.f.	4
"Astra Torres" class :—					
"C.*" -	218′ 0″	49′ 3″	57′ 6″	200,000 c.f.	5
"N.S." -	262′ 0″	56′ 9″	69′ 3″	360,000 c.f.	10

Bombs were carried by all non-rigid airships as their principal armament. Machine guns were also carried as a rule.

Reliability and Endurance.

Airships are generally considered to be fair-weather craft, in contrast to aeroplanes; but it is worthy of note that, up to the end of November, there were only nine days in 1918 when no flying took place; and the British Isles possess the worst weather conditions of any country in the world. The airship in those days had the added handicap of being very difficult to handle on the ground in high winds. But the introduction of efficient mooring-masts has now overcome this evil to a large extent. In misty or foggy weather the airship has considerable advantages over the aeroplane or sea-plane, and as coastal fogs are very prevalent round these islands the superiority of the airship for coast patrol purposes is evident.

The airship branch of the Royal Naval Air Service took the air without much delay when war broke out. The first active service patrol made was that by No. 4, a Parseval—bought, ironically enough, from Germany. This craft carried out a patrol over the Channel from 7 p.m. until 5.30 a.m. on the night of the 5th–6th August, 1914. From that time onward the airship service went steadily ahead; the original fleet of seven growing until, in 1918, it consisted of 103, including rigids. In the early days the patrols, naturally, enough, were of an intermittent character, for bases had to be erected, ships had to be built and the *personnel* trained to man them. An establishment adequate for the needs of seven airships had obviously to be rapidly augmented in order to cope with the requirements of an ever-increasing number. This was done with all possible speed by the Air Department of the Admiralty with a singular degree of success, and the end of 1916 saw the airship branch

an efficient unit of the Navy. The following figures speak for themselves :—

	Hours.	*Miles flown.*
1915	1,496	41,675
1916	8,296	229,187
1917	22,389	579,185
1918	56,536	1,395,763
	88,717	2,245,810

On 1st April, 1918, the airship service was taken over by the Air Ministry and the *personnel* joined the Royal Air Force, but work remained essentially naval.

When trying to forecast the future of airships and their claim to be regarded as a practical means of transport, commercial and otherwise, it is natural to turn to their war record. Judgment on the basis of that record would, however, tend to be unnecessarily severe, and in reviewing the following figures connected with our airships, it should be realised that the casualties include those due to enemy action. In comparing the man-power required to maintain airship and aeroplane services, respectively, it must also be noted that the figures are those of war-time standards and would probably be modified considerably under the more economical usages of peace. Even so the following facts are sufficiently striking :—

	Airships.	*Aeroplanes, &c.*
Men employed per hours flown ...	1·62	3·52
Hours flown per man employed	1·04	·40
Average duration of patrol ...	6 hrs. 17 mins.	2 hrs. 2 mins.
Total casualties to airship *personnel*		239
Fatalities due to enemy action and flying accidents ...		48

For every fatality suffered by airships, 42,548 miles were flown.

Naval Airship Stations.

The ring of airship stations ultimately erected round the coast of Great Britain were so situated that, with the exception of the west coast of Ireland and the north-west coasts of Scotland, the home waters were well covered. Incidentally, our airships did not confine their attentions entirely to the coastline of this country. A base was established on an island in the Ægean in the early stages of the War and maintained until the close of the Gallipoli campaign, and in 1917 a number of the Scout class were sent out to Italy.

Sea Work.

Airship co-operation with surface craft in the anti-submarine campaign consisted chiefly of regular patrols over specified areas and the duties of escort to convoys when that system was adopted for the greater

protection of merchant shipping. The success that attended their efforts can best be realised by the fact that no merchantman was sunk whilst under their surveillance. This alone justified their existence, but, in addition, several U-boats owed their destruction either to direct action by airships themselves or to airships sighting them and summoning

surface patrol craft. Communication with seacraft was no very difficult matter. When the use of wireless was neither practicable nor necessary, signalling by lamp was usually the method adopted. At low altitudes semaphores could be read easily by both airship and ship; a megaphone could also be used with effect under suitable

conditions. To draw the attention of surface craft to any particular spot on the sea's surface for their "guidance and necessary action" it was marked by means of a calcium flare. This proved to be most efficacious, as it minimised considerably the margin of error, that otherwise might have been too great for any useful purpose.

As an escort for sea-going vessels the airship possesses the peculiar advantage of being able to regulate its speed to suit the conditions prevailing, there being no necessity to maintain a high speed in order to remain aloft, as is the case with heavier-than-air craft. In the event of an emergency arising, and weather conditions permitting, a speed of between 50 and 60 knots was easily attainable by most of the non-rigids.

The airship, with its leisurely flight, provided a good platform for observation. This made enemy submarines peculiarly shy of them and they were wont to take refuge in concealment To this can be attributed the large degree of immunity which airships enjoyed from submarine attack, for the gas-filled envelope undoubtedly presents an extremely favourable target. Strangely enough, too, when such attacks did take place they proved singularly abortive.

It is popularly supposed that the sea gives up her secrets unrestrainedly to the aerial observer. But this is not altogether the case, for results rest largely on the state of the sea's surface and the nature of the sea-bed. There is no doubt, however, that objects often invisible to surface craft are revealed to the eyes above. Mines laid outside harbour mouths in dangerous proximity to the course of outward bound convoys were, on several occasions, located by the last minute "sweep" of the airship escort. Again, bubbles of air or oil rising from some submerged object are plainly visible from the air when their presence would go unnoticed by those on board ship.

The submarine menace assumed its acutest form in the English Channel, more especially round Land's End, where dense streams of traffic had to converge. The airship station responsible for the police work of this area was Mullion, situated about five miles north of the Lizard. To the efficiency of that base a great tribute can be paid, not the least share of which is due to the extraordinarily successful system of intelligence work originated and developed by the commanding officer and surgeon during 1917 and 1918. On occasion an airship would be sent to a selected spot and instructed to patrol its immediate vicinity in the expectation that a submarine would break surface within a given time. The number of times that such expectations materialised put these occasions beyond the bounds of coincidence. The St. George's Channel, Bristol Channel and south coast of Ireland were other hot-beds of submarine activity.

A Typical Day's Duty.

The average day in an airship's life during the War was a somewhat monotonous performance except, of course, when there was a meeting

with the enemy. The weather provided the principal diversion, and sometimes piloting was strenuous work. In this respect the Coastal type gave the most trouble, largely on account of its peculiar shape. In " dunty " weather over land it was no uncommon thing for one to stand alternately on its nose and tail, combining with this pitching a sustained roll through an angle of about forty-five degrees. Under these conditions the pilot and coxswain had plenty to do. Once out over the sea, however, one secured a measure of relief even on the worst day.

When an airship left the shelter of its shed for the landing ground, the ritual of farewell was usually a comparatively calm and stately process. But the return was not always so easy, and to it the landing party used to look for their excitement. The wind may have sprung up in the interval of the airship's absence; then their efforts to secure the trail rope on its arrival would often give the impression of a " rugger " scrum. Indeed, it has been necessary on more than one occasion for as many as 200 men to " walk " a 200 ft. Coastal home. Great care has to be exercised and much energy expended during such an undertaking to ensure that an airship's nose is kept " head to wind " until the moment arrives for a rapid wheel into the entrance of the shed. A false order or faulty execution and the damage might be fatal to the ship. Fortunately, in the future the mooring-mast will obviate the use of the shed except when the ship requires an overhaul, an operation which probably could be deferred until the arrival of favourable weather conditions.

On the return of an airship from patrol it was prepared immediately for the next flight. The engine, rigging, and all controls were examined, and overhauled if necessary. The petrol and ballast tanks were replenished, and the hydrogen usually required to be augmented by a fresh supply. It was not until all these tasks were completed that the crew were allowed to take a " stand easy."

The following is a very brief sketch of a typical airship patrol. Let us suppose that the type is a Coastal. The crew consists of five men, " housed " one behind the other in separate cock-pits in a long narrow car. They sit in the following order :—Coxswain, Captain, 2nd Officer, W/T Operator and Engineer. Communication between them is effected by signs, the passing of written messages, shouting, or by climbing out and walking along a rail on the side of the car.

We are now ready to embark on our flight at the early hour of 4.30 a.m. The morning is calm and a skeleton landing party is all that is required. The crew are on board, complete with life-belts, the wearing of which is strictly enforced. The engines have already been running for some time and are now shut off. One last look is taken at all the controls.

The landing party are distributed round the handling guys and the car. The Captain walks out to the entrance of the shed and tests the direction of the wind. Orders come from him in rapid succession, each

one being repeated by the coxswain, who takes up his position at the stern of the ship:

"Lift up the car."
"Walk the ship slowly ahead."
"Bow to starboard a little."
"Steady."

The wind-shields have now been cleared and the orders to turn head into the wind are given:

"Haul away on the starboard fore guys."
"Ease up the port fore guys."
"Ease up the after guys."
"Hang on the port fore guys."
"Walk the ship ahead."

The landing ground reached, the ship is brought to a standstill and the car pulled down to the ground. The engineer goes to the foreward engine, and the Captain gets into his cock-pit:

"Stand clear for'rd."
"All clear for'rd, Sir."

The compressed air rotates the engine rapidly, it fires and starts to purr gently. The same procedure is repeated for the after engine. The Captain waves his arm, a bugle blares, the guys are let go and the car-party give the ship a heave-up, and we are away. In a second or two both engines break into a deafening roar and we forge ahead on our way to the coast. We shall be followed at intervals by two more airships, who will join us eventually over the convoy it will be our duty to escort.

Our orders are to carry out a short patrol before joining an outward bound convoy. All ships sighted are recorded in the log, with details of position and course, &c., and communication is established, if possible, with any war vessels met with *en route* as a matter of course, in order to interchange news. Our position is wirelessed to our base every hour or so.

For a short time before the escorting craft appear we search the mouth of the harbour in conjunction with trawlers and drifters for a possible mine-field. On the arrival of the Senior Naval Officer we report to him for orders and learn the disposition of the convoy, which intelligence, being senior ship of the airship escort, we pass on to the other airships, who have now arrived.

The convoy takes up its formation and, at the speed of the slowest ship, proceeds to a "certain destination," where each ship will be left to its own devices.

One airship takes up its position at the head of the convoy and one astern. We have a roving commission.

In bad weather—rain and low-lying clouds—keeping station is a difficult matter and observation very much restricted. But on a calm day, such as this, the area of vision is very great and a U-boat breaking surface stands little chance of going unobserved.

Hour passes hour—the ceaseless drone of the engines makes it very difficult to overcome the feeling of drowsiness that keeps on stealing over us. The area of extreme danger is passed at last and it is time for us to return to the base. Permission to do so is asked from the S.N.O., and, his consent being forthcoming, the three of us wend our way homewards in different directions, repeating as far as possible the patrols we carried out first thing.

On arriving at the coast once again we wireless the time we expect to land. Nearing the landing ground we ballast up, *i.e.*, get the ship into equilibrium, or nearly so, to enable a slow landing to be made. With engines going dead slow we drop the trail rope into the middle of an expectant group, who seize it and pull us to the ground. We shut off the engines, both have been running steadily for over ten hours, and the sudden peace is a blessed relief.

"Lift up the car, walk the ship ahead." We enter the shed and our job of work for the day is over.

Training.

In the early days of the War the training of airship officers in embryo was, in the nature of things, a hurried affair. A short balloon course was carried out from Wormwood Scrubbs Air Station—the ascents being made from Hurlingham as a rule. This is a necessary item in the curriculum, for, in the event of engine failure, the airship becomes a free balloon at once. In the intervals between the balloon trips instruction was given in the "bare essentials," which were amplified later by courses in Navigation, Gunnery and Engineering at Portsmouth.

On completion of these courses the officer was posted to an active service aerodrome, where he received his first lessons in actual flying, there being no common training ground for airship pilots in those days.

In 1916 the big training centre at Cranwell was opened, where both airship and aeroplane instruction was given. Here flying officers passed through a rigorous and complete training, and arrived at their active service units the "finished article."

Although scrappy and incomplete, a good word can be said for the early method of training. The courses at Portsmouth lasted about three months, and residence in an entirely naval atmosphere for such a period, short as it was, gave the ex-civilian flying officer an opportunity of acquiring at first hand experience of naval routine and tradition.

Circumstances made it impossible at that time for the Navy to man the Naval Air Arm entirely with trained naval officers, and the next best thing was done. But there is no doubt that a lack of knowledge on both sides of each other's difficulties and possibilities hampered to an appreciable extent entirely effective co-operation. Mutual sympathy and a general keenness on everyone's part, however, did all that was possible in the circumstances, but experience showed us that the sea, from whatever angle it may be approached, demands expert knowledge

from those who would serve it. So in the event of another war it will be as well to ensure that the one hand is fully conversant with the duties of the other. The moral is obvious.

Conclusion.

It is not idle to suppose that shipping will be as vital a factor to this country's existence for many years hence as it proved to be during the last war and in the event of future hostilities it will be one of the immediate and most important objective of the enemy once again. The value of the airship as a protective measure has been amply demonstrated and it appears strange that the country to whom they proved of the greatest value was the first to abandon them. The Americans, one of the many Allies whom we trained in this particular branch of aeronautics, have not been slow to realise their great value for the future. Furthermore, they have decided conclusively that the airship is part and parcel of their Fleet. It seems a thousand pities that, with all the evidence we possess from practical experience in support of such a conclusion, the ultimate issue of the airship is still a matter of doubt in our minds.

A "NEW MODEL" ARMY.

By Brevet Lieut.-Colonel R. H. Beadon, C.B.E., R.A.S.C., *p.s.c.*

THE aftermath of the Great War has seen a notable volume of thought and discussion devoted to the Army of the future, and that this mental activity will bear fruit, even in our time, admits of little doubt. The speculations themselves have covered a wide field, ranging as they have from the fantastically futurist to the orthodox and the reactionary.

In the main, however, these prophecies and foreshadowings have been in the direction of improvements in armament and the tactical and strategical processes arising therefrom. They have concerned themselves with two vital questions. Firstly, as to how our troops should be armed for future wars; and, secondly, as to the most effective means of using the new armament. Certainly such problems should suffice to give ample scope to the most enterprising and energetic minds, for they open up fields of achievement that are only limited by the scientific resources and inventive faculties of mankind.

But there is another and an important aspect bearing on the "New Model" Army that seems up to now to have been largely neglected, and to which, therefore, it may not seem inopportune to call attention. It is that which concerns the human factor—the *personnel* who are to direct and who are to execute, and whose professional education must necessarily be on wider and more comprehensive lines than hitherto.

Towards the consideration of this aspect and the issues arising therefrom, it is the intention to devote some few arguments.

During the War a great deal was heard in detraction of the professional soldier, to whom, in fact, most of our shortcomings and failures were imputed by a certain section of the press. But it was not only those who were interested in "boosting" the merits of the "business man" and the "clever" amateur generally who joined in the outcry against the "stupidity" and "lack of imagination" of the regular officer. Reputable writers and thinkers took their part in the campaign. That much of the criticism was superficial, ill-informed and in some instances even malicious should not be allowed to obscure the facts of its volume and influence. Nor was a mere studied aloofness sufficient answer, for it was not by these means that it could be met and controverted. Certainly soldiers should not be among those to concern themselves with any action that might savour of advertising themselves or their merits. Yet the "expert," however truly sagacious, who fails to impress himself as such on his public must fail in his *rôle* because that *rôle* is not confined to inward wisdom and

understanding, but must extend to convince others of that wisdom and understanding. Only by so doing can he justify himself and his leadership.

It may be contended that acts should be left to justify themselves. But such excuse is a mere evasion of responsibility.

The first duty of any directing power is to inspire confidence and it cannot efficiently direct unless it does so. Can we be wholly satisfied that our " professionals " inspired the fullest confidence in the Army and the Nation?

If not, it is incumbent to examine the grounds of criticism rather than to ignore them contemptuously. Indisputably for the greater part they were well meaning and born of the best intentions. Nor were they always unjustified. No good or useful purpose can be served by denying that fact. Again, the lessons to be gained by such examination should not be without their value in the future.

The intense conservatism of what the journalist would call " the military mind " has, it seems, too often neglected the weapons that science has provided. The responsible authorities that exist in the higher offices, having been trained under other conditions and having probably been successful through and by them, cannot normally be expected to be mentally " adventurous." Besides, men of a certain age who may have passed a large portion of their careers in necessary routine are not predisposed to change. There is no reproach in this, since such tendencies are part and parcel of human nature. At the same time it is well to take stock of the consequences of this attitude, which has a serious bearing on the subject in hand.

In the realm of science and invention we are now moving fast and, this being so, modern war is tending to become less and less the field for old minds, because modern brains, a modern outlook and a modern knowledge are increasingly demanded. The nervous strain is, also, accentuated and can be best met by youth. If, then, long experience is no longer the safest guide, it by no means follows that the direction and conduct of war should lie in the hands of the up-to-date amateur unhampered by obsolete tradition. It is rather that the *via media* lies in the younger professional, and the experiences of the late war have gone a long way towards proving this. It is believed that the next war will more than ever justify the conclusion.

The opinion is frequently expressed, and most soldiers will probably have heard it, that the Army must " get back to pre-War standards." The actual meaning of this is probably more often than not limited to standards of discipline, smartness and *esprit de corps*, and, in so far as it is so limited, it is all to the good. If it means much more, however, it is to the bad and engenders a monstrous confusion of thought. The idea of thus putting back the clock is dangerous to the extreme. Satisfaction that the high water mark of efficiency had been attained ten years ago, because life in the Army was perhaps then very much more pleasant, should be challenged and contradicted. That it is even

now being contradicted by the new generation of soldiers no keen observer will deny. The writer once heard one of the new school alluding to what he termed the "pernicious influence of the horse on the soldier's mind. It seems to be as sacred as was the goose to the Romans. As if you can judge military qualifications in these days by the capacity of a man across country. The horse has become an obsession, and the sooner we realise that it is obsolete for most purposes of war the better." Thus went the argument, and to those who heard it, it was heretical and was treated as such. Certainly the remarks in question were exaggerated, for bold and skilful riding does help to develop qualities of resource and a quick decision which are of infinite value in the field. But are there not other and perhaps even more fertile means of so developing such assets? If the warrior of the future is not going to be a mere cold-blooded mechanic or chemist, he is going to be much more akin to such type than he will be to the hunting, racing or polo expert. It may be an unpleasant thought to those who have known the old conditions; it is perhaps an unpleasant thought to us all; for who would not prefer the old family coachman or groom to the modern chauffeur? Yet it must be accepted as a "process of evolution." What age has not said, "There were giants on the earth in those days"? It is an agreeable trait of human nature to look kindly on the past. War, however, can take little account of sentiment.

To those of us who have been brought up in the old scheme of things it may—in fact, it does—seem almost unpleasant and unhealthy that the modern subaltern is more wont to tinker with a motor-bicycle or wireless set than he is to ride over country. We should, however, do well to be chary of condemning these changed tastes and manners. Mechanical interests at all times and in all places are a positive asset to professional efficiency in a scientific army. They must in the course of nature take the place of purely sporting interests which were of such military value in a former age, and which even to-day are of no negligible worth.

He would be sadly lacking in knowledge of the history of man who would take no count of the power of tradition and its influence for good in an army. Yet there is a great deal of loose thinking about this subject of tradition. It was a certain break with tradition that made the Cromwellian army. It was a much greater break that called into life the armies of the First Republic. On the other hand, it was a blind adherence to the tradition of Frederick that led to a Jena and all its direful consequences to the Prussian State.

Like ambition, tradition may be a very great good or it may be a very great eveil. Modern German soldiers, normally held to be reactionary enough individuals, have not failed to emphasise this. "Adherence to tradition rather than faith in a living continuous development is fatal to an army," wrote General Freytag von Loringhoven in 1916.

In an age when scientific and material progress was slow, the digestion, assimilation and emulation of past deeds and past triumphs was an infinite source of strength. To-day, when new and startling inventions and attainments are definitely accomplished or come within the reach of man, it becomes increasingly important and profitable to fix the eyes on the future rather than to regard the past. It is, then, a grave misdirection of energy to stress what has been at the expense of what may be.

It may be contended that such danger is purely chimerical. And certainly this is perhaps not always apparent. But it is none the less real and subtle. It manifests itself indirectly in tendencies to cast the minds of soldiers into what may be termed " the military mould," which is antagonistic from its very nature to individualism, independence of thought and to the searching and inquiring mind, dissatisfied with the *status quo* and groping towards something better. And it is just these last qualities that are the necessary mental accompaniment of a highly complicated scientific and rapidly developing material equipment. Else we shall have " new wine in old bottles."

" We don't want highbrows. Character is what has made the British army " still expresses the mind of a certain type of soldier. Truly, character is of first importance. It has gone far in the past and will do so in the future. But supplemented by the more brilliant gifts it will go very much further still. Yet the combination seems to be deemed impossible of attainment. There exists, too, among soldiers a certain suspicion of those who are facile in speech and argument. For such facility may seem to indicate a lack of the more solid qualities of loyalty and tenacity which above all other qualities are esteemed in the army. Again knowledge of a certain kind is still regarded with no favourable eye. Yet there is no knowledge that is without its use, even the most obscure and unusual.

An impartial opinion will admit the dangers that lie in unlimited freedom of thought within an army; and that not only for disciplinary reasons, but also because training and administration must be conducted on uniform lines. Nevertheless it would seem that a greater latitude of the word is permissible or, at any rate, a more pronounced elasticity of the mental equipment, must be sought if the intellect of the soldier is to be more fruitful. After all, the Army did not, as a General d'Ordel would have prophesied, " go to the dogs " when precise drill, close tactical formations and a more rigid discipline were modified. And all these things have been in a continual process of modification that has always demanded more and more initiative and " private judgment " on the part of the individual. We have now reached a stage when further and even wider modifications are required and there seems no good reason to believe that the army machine would disrupt in the process of their assimilation.

Reflections as to the broader education of the soldier lead inevitably towards the consideration of the *rôle* that will devolve upon him

in the national war. And this *rôle* is to organise and direct the nation in arms. The profession of arms is not, as is so often stated, moribund. On the contrary, its scope is extended and its activities and influence manifest themselves in wider directions.

The various processes by which energies are converted from the purposes of peace to those of war offer problems that are both numerous and intricate. Nor are these problems susceptible of solution in any rough and ready manner. The delicate mechanism of industrial civilisation is only too easily thrown out of gear. A comprehension of economic factors is as vital to the organisation of the nation for war as it is for the act of transition from the war to the peace footing again. And in both processes the soldier must bear an important and ever-increasing part. Unless thought is given to these conditions *now*, failure, or at best " a muddle through," will be the lot *then*. We may call to mind Napier's generals who, on rising to responsibility with empty pates, found that it was too late to fill them.

Now, obviously, such knowledge and understanding as have been advocated above cannot confine itself to the domestic side alone. It must comprehend not only the enemy but even the whole world in its purview, for the world, with improvements in communications, is shrinking in size and the peoples are becoming ever more and more dependent one on another.

No mean task is the acquisition of this knowledge, but as " citizens of no mean city," it must be acquired if the city is to be held and soldiers cannot burke the responsibilities that are theirs in the matter and leave others to do the thinking for them. For wars are more and more definitely and directly economic operations in which organisation plays the largest part.

The point has been stressed because it is believed that there exists a lack of appreciation of a clear and vital need. Consequently those officers whose knowledge and abilities lie rather in that direction are apt to be ignored or passed by in favour of those who excel at the more obvious and everyday sides of soldiering. Because a man may be a most competent tactician, or a conscientious organizer of detail, or a master of careful routine, it by no means follows that he will be well placed where a far more general knowledge, wide education and a broader vision are among the essential qualities for assessing national or even world events in their true proportion as well as for formulating an independent and unprejudiced judgment thereon. Yet it is just those who prove themselves on the " smaller side," if such a term can be applied to what is most necessary and useful, who are, in the order of things, most likely to rise to positions for which their qualifications, valuable as they may be in their own sphere, unfit them to fill. Imagination, vision and the independent, inquiring futurist mind are not the common product of humdrum professional life. Nor is it even desirable that they should be. But that these qualities are vital to an army for its higher direction is incontestable, especially when

that army is to be the nucleus, framework and inspiration of the nation in arms, that is, the modern war machine. Mere erudition will not suffice. The " push and go " of the " business man " will not suffice. A blend of these two last is unsatisfactory because it conduces to amateur methods that concentrate on what they conceive themselves strong. The professional, on the other hand, is more inclined to practice and study his weak points with a view to making good his deficiencies.

In all this there is no intention to presuppose the superman. The plea is, firstly, for the broader education of the professional soldier, in order that he may be more fitted to cope with the more exacting demands of modern war; and, secondly, for a policy that will emphasise more strongly the necessity of using individuals more in accord with their special attributes. On the fulfilment of the first of the above conditions depends to a large extent the second. In actual fact the charge of " stupidity," so often preferred against the soldier from outside, is less justified to-day than it ever was. But the talent that exists in the Army needs certain re-arrangement and re-adjustment. And so it may be contended that what has been advocated might lead the soldier to trench on ground that should be outside his sphere in that he may be led into questions of high policy that are rather for the statesman than for his instrument. To contest this point would require more space than it is intended to devote to this present paper. This much, however, may be said: the line of demarcation between policy and strategy does not exist. It was not the least of the merits of Sir Henry Wilson that he recognised this and refused to be bound by the conventions on the matter. In some quarters it has been actually made a sort of reproach to him that he was " too much a political soldier." But such reproach is in itself one of his greatest claims for remembrance in that he was thus enabled to envisage events more broadly.

It is not only in the sense that has been indicated above that individuality and imagination does exert itself usefully in the soldier. The inventive faculties are no less to be encouraged and nurtured than the *flair* in dealing more directly with the affairs of men.

The mentality that conceives that existing methods of fighting are obsolete and that a striving after perfection therein can lead to results but insignificant in value in comparison to those that may be obtained by the adoption of some new weapon or device, is normally hard put to for the convincing of its contemporaries. But it is the type of mind that has given us every successive improvement in armament. It is the type of mind that gave us the Tanks but yesterday, and, so it may be conjectured, will give us something even better to-morrow. From its very nature it must be impatient and intolerant. And impatience and intolerance are not regarded beneficently by the conventions, much less by those, and they form the vast majority, who unconsciously aspire to the heights of the *bon général ordinaire.*

Yet an easy-going placidity is but one way of damnation.

Arising out of the conditions that an attempt has been made to indicate above is the question of promotion. Here far-reaching reforms are long overdue. The Army lags sadly behind the Royal Navy and the Royal Air Force. So there is precedent in the oldest and youngest of Services. The golden moment for the recasting of the old system was at the end of the Great War, though it is perhaps rather captious to say so in view of the multifarious concerns that had necessarily to take priority of such reforms. Advancement, purely by selection is the ideal; but it is an ideal difficult of practical realisation owing to the fallibility of human nature, by which only approximate justice can ever be attained. A middle course must be sought. And that middle course lies in something of the nature of that holding the field in the Senior Service—promotion in the junior commissioned ranks by seniority and thence onwards by selection. In the Army the dividing line may be suggested as up to and including the rank of captain. There is very little to be said for existing methods, except that they are convenient in view of the regimental system that pertains..

Therefore the recommendations embodied in the Haldane report on the subject of accelerated promotion are very much to be welcomed, and it is to be hoped that no delays will be experienced in putting them into substantial effect. Otherwise it may be feared that, as the War recedes into the background of time, it will become more and more difficult to arrive at any sort of equitable adjustment. For war, "the great exposer of fraud," tests and tries out individual worth beyond all other gauge. It is impossible, and the dogmatic term is used in all seriousness, for enthusiasm and progress to be maintained and stimulated under conditions by which merit does not receive its due reward. It may be—indeed, it often is—unavoidable that an officer who commanded a battalion for a considerable period and with success in face of the enemy, should, six years afterwards, consider himself fortunate to command a company on the peace establishment. Dozens of instances must be known to everyone of "war lieutenant-colonels" still serving in their substantive rank of captains and it is not encouraging, especially when the far less distinguished have been enabled to hold their own by virtue of their seniority alone, and in many instances have equal if not better, prospects of advancement. When all considerations of chance, accident, local or special conditions are allowed for, it is unhealthy and illogical that those whom the stern necessity of war brought forward should, in peace, revert to a status governed primarily by age, and should in consequence find themselves subordinate to the men whom they left behind in the last war and should leave behind in the next. Such situations may be very good for the character in the inculcation of humility, but they are, well—damnably—bad for the encouragement of the right sort of ambition inherent in those who "have some conscience in what they do."

That a general and very marked "scaling down" of commands,

appointments and emoluments in the military hierarchy had to follow demobilisation is so obvious that it scarcely needs mention. What it is desired to emphasise by what has been said above is that the process should be made as painless as is possible for the deserving, and painful and ruthless for the rest. It would be churlish—nay, even mendacious—to assert that nothing has been done. In some directions a good deal has been. But there has been a certain " unevenness " throughout the Army in this respect and some branches lag sadly behind others. Those who conceive themselves as hardly treated may perhaps find comfort in the instance of an American officer in similar circumstances. As a young regular he rose to the command of a division of the National Army in 1865 with the temporary rank of Major-General of Volunteers. In 1898 he was commanding a regular battalion in Cuba in his substantive rank of lieutenant-colonel!

But the present generation is not disposed to accept what satisfied that which preceded it. To-day the world of life is more alert and more exacting. And it is well to be alive to this aspect in dealing with any human organism, not excepting even one so long established and of such good repute as the Army. All contemplation of the mind of to-morrow can only lead to some acknowledgment of these outstanding tendencies from the old order forward to the threshold of the new

THE NATION'S DEBT TO THE FIGHTING SERVICES AND HOW TO PAY IT.

By CAPTAIN T. J. EDWARDS, The Somerset Light Infantry (Prince Albert's).

THE following article is an attempt to bring up to date the problem of finding civil employment for ex-Regular Service men. This problem is the root-cause of the unpopularity of service in the fighting forces, and is inseparably connected with recruiting, general efficiency, particularly of the Reserves, and expenditure on Service Ministries' Votes.

HISTORICAL.

Up to 1870—*i.e.*, before the introduction of the Cardwell system—service in the Army was practically for life. No question of civil employment for ex-soldiers, therefore, arose. In 1870 the Army Enlistment Act was passed, providing for enlistment on an engagement for 12 years: six years to be spent with the Colours and the remaining six years in the Reserve. It will thus be seen that under this new system men commenced to be passed into the Reserve in 1876. The year after, 1877, the first of the Select Committees was formed to enquire into the question of civil employment for ex-sailors and ex-soldiers, and it is significant that the first of the two questions they had to consider was that which is closely connected with Recruiting for the Services, viz.: "Whether a better class of man would be induced to enter the military or naval service if the prospect were held out to them of civil employment after a certain period of meritorious service?" That question may be said, generally, to form the basis of the investigations of this and all other Parliamentary Committees, seven in all, viz., 1877, 1883, 1891, 1895, 1906, 1913, and 1914. These Committees did an enormous amount of work; but the problem is as acute to-day as it was when the first Committee sat in 1877. This statement is not intended to convey the idea that their work was useless; on the contrary, for, had their recommendations been put into effect, there would have been no problem to-day. The fault lies not with the work of the Committees, but in the subsequent action—or, more correctly, inaction—taken on their recommendations.

The numerous recommendations made by the Committees fall into two categories:—

(*a*) Schemes for increasing the percentage of ex-sailors and ex-soldiers to be employed in Government Departments.

(*b*) Schemes for increasing the employability of the sailor and soldier while serving.

The Fighting Services do not provide a Career.

Although the fighting Services are a necessity, they do not, and under the present system cannot, offer a career.

Owing to the need for creating a Reserve, the majority of soldiers normally end their Colour Service after seven years' service, *i.e.*, about the age of 25–26. A few are permitted to serve 12 years with the Colours, therefore they would leave the Colours when about 30–31 years of age; and fewer still are allowed to serve for 21 years, leaving the Colours about the age of 40. In the Royal Navy ratings have to serve 22 years for pension, and in the Royal Air Force for 24 years. Considering only the most rosy aspect of such service, no one can say it is a "career" when compared with civil careers. The average working-class man can, and does, work up to the age of 60 (he cannot, at present, get the Old Age Pension until he is 70[1]), so that a long-service pensioner would still have to work 20 years at least after leaving the Service.

It is true that these long-service men earn pensions, but this is not sufficient to allow them to dispense with civil employment if poverty is to be kept at arm's length. Qualifying for a pension is double-edged, for while the Service man is qualifying for a pension he is in the majority of cases reducing his employability in civil life in the same ratio. Hence, we arrive at the situation of having a number of pensioners leaving the Services every year in the prime of life, with growing families, whose economic value is almost nil. The public is cognisant of these facts, and it is not likely that any parent who has his son's interest at heart is going to recommend to him such a *cul-de-sac* occupation which, at best, in the case of the Army, will end at the age of 40, and perhaps a little later in the case of the Navy and Royal Air Force.

However necessary and useful the Service man may be to the State whilst he is actually serving, the majority find that on return to civil life this very service has rendered them practically useless for competition in the labour market, and they and their families are seriously handicapped in the struggle for existence.

Effects of the "Cul-de-sac."

The fact that the fighting Services are not careers, directly and chiefly affects:—

(*a*) Recruiting.
(*b*) Unemployment; and
(*c*) Pensions.

(*a*) *Recruiting.*—It has already been remarked that the influence of the prospect of civil employment on recruiting occurred to the minds of

[1] 65 when the new Bill comes into force.

those in authority very soon after the introduction of the Cardwell system. It was felt that a "better class of man" was needed for the fighting Services, and to attract this "better class" the prospect of civil employment on discharge was considered sufficient inducement.

Modern war demands a higher standard of education than the wars of the 19th century. At the present time secondary education is within the reach of the working classes, through the medium of scholarships; yet at the present moment the education of recruits is not so satisfactory as it might be. This indicates that the better educated working-class are not attracted towards the Services. In fact, those members of the working class who have received secondary education tend to gravitate to the Civil Service or good civil employment, and to avoid the fighting Services.

It is, therefore, clear that the Services start with a very serious handicap in their competition with occupations, callings, etc., which are real careers, in their endeavours to secure the better type of working-class youth. This handicap is responsible for the effort to obtain recruits, which, expressed in terms of £ s. d., is, as estimated for 1924, £156,700. Recruiting for the Civil Service costs practically nothing, because intending entrants pay all their travelling expenses to the place of examination, and also pay an examination fee. The only advertising done is that of the dates of the entrance examinations, which are published in the *London Gazette*. The Civil Service practically guarantees a man a job until he is 60, then pensions him off, and these conditions are sufficient to attract the better educated working-class youth to it. If the fighting Services were attractive, a considerable portion of the recruiting machinery could be scrapped, resulting in a large cut in the Recruiting Votes.

Owing to the increase in the percentage of mechanicalised weapons and means of transport occasioned by the Great War, the Services require a higher percentage of tradesmen than formerly, yet skilled tradesmen are difficult to obtain for the Army. It is also doubtful whether the training establishments for boys will eliminate this difficulty.

If a man is a skilled tradesman his career in civil life is, normally, assured, therefore it is unlikely that he will join the fighting Services for a few years and lose touch with civilian methods, even though he may work at his trade during his service, unless some inducement is held out to him. This inducement takes the form of preferential treatment as regards rates of pay over and above his ordinary pay, viz., tradesmen's rates. The inducement is, therefore, somewhat expensive, when it is remembered that, in the case of the Army alone, approximately one-third of the "other ranks" are tradesmen.

(*b*) *Unemployment.*—If the Services offered a career and could guarantee a man some form of State employment until he reached the age of 60, the number of ex-Regular Service men in unemployment would be considerably reduced. It is quite realised that every Service man could not be found civil employment on leaving the Services; but

if a large percentage of men with Exemplary, Very Good, and Good characters were found employment, much would be done to reduce the amount now allocated to Unemployment Insurance benefits for Regular Service men, which in 1924 was estimated at £308,150.

(*c*) *Pension.*—By turning a Service man adrift on to an unsympathetic labour market after he has given 20 odd years of his life to its service, the State feels it has a moral obligation towards him and discharges this obligation by giving him a small pension.[1] But these pensions, such as they are, represent a large sum of money in the aggregate. In 1924 the estimate for the Service Pension Vote was £8,000,000 for the Services. If pensioners could be passed on to some form of State employ and their pensions deferred until they finally leave that employ, say, at the age of 60, the Pension Vote would be considerably reduced. It may be argued that some other Vote would have to pay the ex-Service man when in State employ. That is so. But if an ex-Service man who is entitled to a pension goes direct to State employ, the State is only paying one man from " x " Vote, and no one from the Pension Vote. But if an ex-Service man, entitled to a pension, does not go to State employ, then the State has to pay one man from " x " Vote and one pension from the Pension Vote. By adopting the former course, the payment on the Pension Vote is saved for about 20 years.

Therefore, because the fighting Services are not attractive, they cost annually :—

	£
In Recruiting Machinery	156,700
In Unemployment Insurance	308,150
In Service Pensions	8,000,000

which makes a total of £8,464,850. To this enormous sum must be added the amount allotted to tradesmen's rates of pay in the three Services.

Position of the ex-Regular Service Man.

(a) *Attitude of the State.*—As previously remarked, the State is fully aware of its moral obligation towards the ex-Service man. During his service the State has trained him in those excellent qualities which are the foundation of loyalty, patriotism, and good citizenship. From his earliest days in the Services he receives training in discipline, initiative, *esprit de corps*, self-control, self-respect, self-reliance, perseverance and endurance. All his training, life in barracks or at sea, and on the playing fields tend to make him a fine, healthy sportsman, who is able to bear life with cheerful optimism under the very hardest conditions, as exemplified every day of the Great War. Though he may have been

[1] It has always been held in the Navy that a pension is " deferred pay," and should not, therefore, be withheld once it has been earned unless increased in proportion to the further period of service.—Ed.

"mothered" too much as regards his material needs, such as food and clothing, his moral, mental and physical training have been such as to produce a good type of citizen.

Having produced such excellent material at enormous expense, it would appear logical that the State would harness it, or the best of it, to its service in some civil capacity.

However logical the reasoning may be, it is not followed. No doubt the State considers that, by allowing this good material to become absorbed into civil industry, the nation will reap the benefit of the training and upbringing lavished upon it just as well as though it were all diverted into State service. This would be correct if all, or the best, of the ex-Regulars were able to obtain civil employment more or less of a status approximating to that which they occupied in the Services, immediately on leaving. Unfortunately, however, ex-Regulars other than skilled tradesmen have the greatest difficulty in obtaining employment of any kind, and it is just these periods of unemployment which, in a few months, entirely breaks down all the good work which has been gradually built up by years in the Service.

The State may also consider that the ex-Regular is catered for sufficiently by the voluntary associations which are working on his behalf; but there are at least two points connected with these voluntary associations:—

1. They have realised that the State has a moral obligation towards the ex-Regular in the matter of finding him employment and have voluntarily taken upon themselves to discharge the State's obligation.[1]

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[1] It is understood however, that there is under consideration at the present moment a scheme whereunder it is proposed to ask County Territorial Associations to become the medium through which employment will be found for ex-Regular soldiers. The scheme is believed to be in an advanced stage, and is the outcome of the deliberations of an Inter-Departmental Committee.

To assist ex-Regular soldiers in obtaining employment through the Voluntary Associations, the War Office has instituted a procedure by which all soldiers, who have not themselves found employment up to within their last month of Colour Service, can have their names, qualifications for employment and other relevant details forwarded to certain organisations in the county in which the man intends to reside on leaving the Colours.

To assist further the ex-Regular soldier in his efforts to obtain employment in civil life, the War Office has recently revised and combined in one form the Certificates of Character, Transfer to the Army Reserve and Discharge. The new form is entitled "Certificate of Service." It is a neat 12-page booklet, and it gives all the information concerning those qualifications which chiefly assist an ex-Regular when interviewing a prospective employer, viz., character, trade qualifications, attainments and classes of instruction that have been passed. The new Certificate came into use on 1st August, 1925. The "Certificate in testimonial form," the recording of which was the sole purpose of the former Character Certificate, is retained in the new Certificate. But, however incomplete the information in this particular portion of the Certificate of Service may be, there are many headings in other parts of the booklet which must be completed and which, in themselves, will materially assist the ex-soldier. It is considered

2. That, however efficient the machinery may be to find ex-Regulars employment, *it can never raise their employability*, i.e., at best they can only be placed in a job where they will fit.

(b) *Attitude of Employers.*—Napoleon said that we were a nation of shopkeepers. A few months ago the French papers were commenting on the fact that, no sooner was the war over, than we were thinking about business and forgetting the sentimental ties between the two nations. There is a great deal of truth in these statements, and it is to the credit of the British nation that it does put business first, because that is what we exist on—not wars or sentiment.

The business man has to make his business pay, otherwise he must close down. Self-preservation, the first law of nature, compels him to exclude all feelings of sentiment from his business (unless they create business), because sentiment will not satisfy shareholders who are looking forward to something tangible in the shape of dividends. Neither will misplaced sentiment avail much in a bankruptcy court.

Therefore, the employer seeks the best material on the market in *his* own interest, not in the interest of the material. Unskilled material being plentiful, he has a wide choice, and a man who has had some knowledge of the particular work the employer has in view is bound to command more hearing than the ex-Regular Service man who has none. Further, employers have "waiting lists" of employees whom they have had to stand off, and it is only natural that they call on these lists before considering the applications of strangers, as many ex-Regular Service men must be. Though generally sympathetic towards ex-Regular Service men, employers contribute towards the maintenance of a system which they know full well produces bad economic material.

During a campaign the minds of business men are directed towards the struggle either from humane reasons, owing to family ties, or for business reasons. The majority, however, are only concerned about the fighting man from the point of view of what *he* will do for *them*, and *not* what they can do for *him*. Another occasion on which employers become interested in the Regular is during periods of industrial disturbance, *i.e.*, strikes. Their chief interest is not in the Service men, but in the protection he will afford to their businesses.

(c) *Attitude of the Public generally.*—As a whole, the public is sympathetic towards the ex-Regular Service man to the extent that

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that the new Certificate will remove a long-standing reproach that the Military Authorities did not give the soldier, when he left the Colours, a record of his service containing adequate details for the purpose of securing employment.

Vocational Training in the Navy and Army, though not at present carried on extensively, cannot be ignored as a means of preparing the Regular for civil life. In the Army, approximately 1,000 men a year go to Hounslow and Catterick for a six months' course, and, in 1924, 80 per cent. of this number found employment before or immediately on leaving the Colours. In addition, approximately 1,000 men a year pass through the Command Training Centres, where the course lasts three months.

it will subscribe towards charitable objects, relief funds, etc. It will also, however, see genuine ex-Regulars with breasts of medals (if not pawned) standing in gutters selling matches, laces, etc., men whom they know fought and risked their lives for their sake in Egypt, India, Africa, and the Great War. The public is aware of these circumstances, but it does not enquire why these men are not better treated by the State.

Summary.—It is, therefore, clear that the condition and welfare of the ex-Regular Service man is almost totally disregarded by the State, and, in a large measure, by employers and the public in general.

How Foreign Countries deal with the Problem.

It is interesting to see what has been the attitude of some foreign countries towards this problem. Let us take Germany, France, and Italy.

Germany.

The following is an extract from "Handbook of the German Army, 1912," page 24. Dealing with N.C.Os. (*i.e.*, those who serve continuously and are comparable to our long-service men as distinct from conscripts), it states:—

> "There are two courses. The first degree course is meant to give the requisite amount of general education; the second degree course is to complete the military instruction of under-officers and render them capable of filling the higher military grades, also *posts in the Civil Service.* . . . It is recognised that to retain a good body of N.C.Os., everything must be done to make them comfortable and contented in the Service, respected by the civil population, *and free from care as to their future after leaving the Army.*
>
> "N.C.Os. of uniformly good conduct may receive, after 12 years' service, a recommendation for civil employment. The civil posts to which they may be appointed are the Gendarmerie, the civil police, military administrative branches, postal, telegraph, railway, canal, customs, forest (lower posts only), and medical services."

It is noteworthy that Germany, in pre-war days, found it necessary to make provision for soldiers being "free from care as to their future after leaving the Army," and this in a country with a conscript Army, where there was no difficulty in raising recruits.

To-day Germany is doing the following for her soldiers:—

Non-Commissioned Officers and men who leave the Service on completion of their 12 years' engagement, and those who, having served

for at least four years, are dismissed on account of physical incapacity for further service, can claim :—

(*a*) Interim payments to assist them during the period of transition to *civilian employment* at the following rates :—

In the first year, six-eighths of the total service income last drawn by the soldier.

In the second year, five-eighths of the total service income last drawn by the soldier.

In the third year, four-eighths of the total service income last drawn by the soldier.

(*b*) An *additional* cash payment to the above. This payment is made in cases where the soldier adopts a non-official career, and can be claimed by him in lieu of the Civil Service Certificate, This payment is made on discharge, and amounts to two months' pay at the last rate received by the soldier.

(*c*) Alternatively to (*b*), a Civil Service Certificate entitling the bearer to a *priority claim for employment* as an "official" at the hands of either the Federal State or Communal Authorities.

(*d*) Extra cash payments to the above for wives and children; also allowances from time to time on a sliding scale to compensate for the rise in prices.

(*e*) A lump sum down to assist the soldier to purchase civilian clothing. This sum is equivalent to two months' pay at the rate last drawn by the soldier.

(*f*) A small sum to cover cost of removal, transport, etc., of the soldier's belongings to the scene of his new activities.

(*g*) In addition, in special cases, advance payments of the above claims may be made in cases where such payments would unquestionably assist the soldier to establish himself in his new profession (*e.g.*, purchase of a shop or of a small holding, etc.).

(*h*) Further, in the case of a soldier who takes a farm or small holding on the land, a "Federal guarantee" is granted to ensure the security of his tenure.

During his service in the Army, the soldier also receives technical instruction in the profession he eventually desires to adopt. In this connection, a fortnightly paper, entitled *Der Militär Anwarter*, exists, and has a considerable circulation amongst the senior soldiers and non-commissioned officers of the Reichswehr. This paper contains notices of vacancies which occur from time to time in the Civilian Service of the Reich, States and Communes. It also contains instructions, *questionnaires* and exercises in all modern school subjects and in most professions.

It will, therefore, be seen that Germany has done much towards eliminating from the minds of her soldiers that disturbing element caused by the realisation of the problem of employment.

France.

In France in 1914 there was a definite organisation for placing long-service men in civil employment. Briefly, the system was as follows:—

Government Departments and private concerns periodically gave the War Minister a forecast of vacancies during the ensuing year, and this information was passed on to units.

Officers commanding units then sent to the War Office lists of applications for civil employ.

A committee assembled once a quarter, and classified candidates for different posts. This committee, presided over by a General Officer, comprised representatives of all the Ministries and of private concerns which reserved positions for ex-soldiers. The classification was then officially notified to all concerned.

Under the system in vogue to-day, instruction is given to a number of men during Army service in subjects which are taken at the Civil Service Examinations. Those who pass the examinations on discharge, displace men who did not serve during the late war. France is, therefore, training her soldiers for Civil Service posts, which to a large extent keeps them contented during service by relegating to the background the shadow of unemployment.

Italy.

In the Italian Army one-third of the posts in any Government Department, and on the railways, are reserved for long service ex-soldiers (*vide* Handbook of the Italian Army, 1913).

Some Suggested Remedies.

It is hoped that enough has been said to demonstrate that this question is not confined to the fighting Services alone, but, owing to the fact that the fighting Services are an integral part of the national organisation, the question is a national one. So long as it is necessary in the nation's interest for a portion of its youth to pass through the ranks of the fighting Services, and on leaving become absorbed into civil industry, so long will this problem remain, *i.e.*, the problem of absorbing about 40,000 men annually into satisfactory civil careers, who, in the majority of cases, have had their economic value lowered by State service.

The chief question appears to be, "How can service in the fighting forces be made attractive to the best of the working classes?" The answer to this question presents two alternatives, viz.:—

(*a*) Prolong the Service man's time in State service (other than the Navy, Army or Royal Air Force), or give him a guarantee of civil employment until he reaches the age of 60; or

(*b*) Whilst he is serving, increase his employability to such an extent that when he leaves he will be able to compete in the labour market with his civilian comrades without any handicap.

The present moment seems to be particularly opportune to deal with this question, in view of the fact that the question of unemployment generally is now very prominent, and has been, and is being, investigated by Parliamentary Committees.

A. It is suggested that a Committee should consider the following proposals and explore them as far as possible, obtaining evidence and assistance from other Government Departments as required :—

(1) Ascertain how the State could benefit to the fullest extent by the training it has given its sailors, soldiers and airmen, the benefit to take the form of reserving for ex-Regular Service men a large percentage of posts in all State Departments where their past training will be an advantage.

This would necessitate an investigation into the training, education, conditions of life, health, qualifications for technical and non-technical appointments, moral qualities of patriotism, endurance, etc.; in fact, everything which influences the life of the Regular Service man. With the results of such an examination before it on the one hand, and the needs of State Departments on the other, the Committee would be able to see how qualified ex-Regular Service men could best be absorbed into State employ.

In allocating any reserved posts, a clear distinction would have to be made between Pensioners and Reservists. No Government Department could afford to employ a large percentage of Reservists, whose services they would lose immediately on mobilisation being ordered.

(2) Either in conjunction with or independent of the proposal at (1) above, an enquiry to be made into the manner in which Service men, whilst serving, could qualify at Civil Service examinations for posts in the Civil Service when they leave the Services. The expression "when they leave the Services" to include any time which the Service Ministries consider such qualified men could be prematurely transferred to the Reserve or discharged for the specific purpose of entering the Civil Service.

A similar system is in vogue in France at the present moment. The standard and system of education in the Services at present is such that most Service men have an opportunity of qualifying for the lower division of the Civil Service. To grant these facilities would be practically inexpensive to the State, which would gain by harnessing the splendid material it has trained to further State service. The present need is, however, to create the facilities; at present, they do not exist.

(3) In conjunction with the proposals at (1) and (2) above, the adoption of a system of deferred pensions, *i.e.*, where men have earned service pensions and go straight to, or are eventually admitted to, State employment which is also pensionable (*e.g.*, the Civil Service), their pensions are not paid at the end of their military, etc., service, but are withheld until they eventually

leave State employment at the age of 60, or earlier if compelled to for any reason.

In this case a new scale of pensions would be required for those so employed. In any case such a system of deferred pensions may solve to a great extent the problem of cutting down the heavy Pension Vote.

In this connection it is important to compare service in the Civil Service and in the fighting Services. Assuming that recruits to all Services enter at the age of 18, a Civil Servant can serve until he reaches the age of 60, then retire with a pension sufficient to relieve the mind of any anxiety regarding the necessity of doing hard work. At this age it is most unlikely that his children are any liability to him, but rather the other way, *i.e.*, they are most likely to be in a position to assist their parents. Further, on entering the Civil Service, he practically had a definite guarantee of employment for 42 years without any hazards to health and life in tropical climates, the necessary disturbance to social life by regular moves from station to station every three years, and is not affected by the state of a Reserve or compulsory reductions. In short, he has entered a career where a man of very average abilities can maintain his position, and even rise in position in course of time, without any disturbance of mind regarding probable unemployment.

The case of the soldier is very different. At the most, only a very few can serve until they are 40 years of age, *i.e.*, they earn their service pensions at 39 years of age, after 21 years' service. The Civil Servant can serve for 42 years, therefore the soldier can only serve for just half that time. During those 21 years a soldier may, and probably has, served the State in a tropical climate; served in at least one campaign, and had a number of changes of station. On leaving, his family, if he has any, is at the expensive age, and he will not be relieved of his responsibility over them for some years to come. His pension, however much he may conjure with it, could not keep poverty from his door on its own account. This has to be supplemented by wages from civil occupation, which brings us back to our original statement that the Service man is sadly—only too true is it "sadly"—in need, either of State employ until he attains the age of 60 or of an opportunity to raise his employability while serving to such an extent that he will be able to compete on equal terms in the labour market with his civilian *confrères*.

Similar arguments apply to the sailor, a large proportion of whom leave the Service without pension after 12 years at the age of 30.

(4) Though included under (1) above, it is suggested that the percentage of ex-professional Service men (*i.e.*, those who enlist on a 12-years' engagement) employed under the General Post Office, should be considerably raised and, instead of the present "understanding," a definite State guarantee should take its place.

It would be useless to raise the percentage as suggested above, unless the fighting Services were given powers to see that the guarantee was actually carried out.

At present, there is an "understanding" with the G.P.O. that ex-Regular Service men will have reserved for them 50 per cent. of the permanent employment under the G.P.O. The trouble with this understanding is that (i) it is an understanding and not a State guarantee; (ii) the fighting Services can in no way control it; (iii) that before the war 50 per cent. of the permanent employment was reserved for ex-sailors and ex-soldiers, but the percentage has not been raised since ex-airmen have become eligible for permanent employment under the G.P.O.; (iv) that the posts reserved for ex-Service men are all of a low-grade type, viz., telegraphists, sorting clerks, postmen and porters.

(5) If the proposals at (1), (2) and (3) are adopted in any form, notification be made by the Service Departments to all concerned, giving information regarding the scope of the examinations, conditions of employment, registration, and all similar and necessary details. To enable this to be done, Service Departments to have a Service (as well as a Civil) representative on any boards, committees, etc., which will deal with these questions.

(6) To enable Service men to compete fairly in the labour market with skilled and semi-skilled men, it is suggested that Vocational Training be extended to all Service men of good character who need it, particularly to pensioners and those going to the Reserve. In the case of tradesmen, it is suggested that special training be given in modern requirements of civil occupations for which they are suited.

The Vocational Training Centres at Hounslow and Catterick and in Commands are doing a great work, and have fully justified their existence, but their activities are too limited.

In the Navy, vocational training has recently been instituted, but it is restricted in that full-time training cannot be admitted in principle, since it would require more men and therefore cost more.

This proposal also directly affects the efficiency of the Reserves. One of the outstanding lessons of the late war was that, in the early stages, the success of operations depended on the physical fitness and mental alertness of Reservists drawn from civil life. It is, therefore, of paramount importance to ensure that the Reservist has good employment in civil life in order to keep him physically fit and mentally alert. A further effect of many forms of employment will be to make him more apt to learn new (mechanical) weapons, and to render his unit less dependent on the "technical corps."

It is, therefore, clear that by increasing the opportunities for Vocational Training the State benefits by the increased efficiency of the Reserve, and the Reservist by being able to obtain higher-grade employment.

B One of the main difficulties in dealing with this question is that of securing the recognition by trade unions of Service-trained tradesmen. It is not implied that trade unionism as such is opposed to tradesmen who are trained in the fighting Services; but the fact is, there is not

room for them in a union when they leave the Services at the present time. It is quite realised that if a union has many of its members unemployed, it cannot be expected to enrol further members who, of necessity, must adversely affect the union funds.

What is needed, however, is a general statement by the representative congresses of Trades Unions to the effect that Service-trained tradesmen should not be debarred from entering a union on that account, and, provided they fulfil the ordinary conditions of candidates for admission, they should be enrolled when opportunity offers. Such a statement would clear the air of a large amount of uncertainty which at present exists on this question, and would allow unions to absorb Service-trained men when the conditions of trade permitted such a course.[1] It would also set at rest the minds of hundreds of parents who would like to send up their sons to compete in the Entrance Examinations for entry into the Services through the Technical Schools, and, later on, it would remove any doubts on this point from the minds of the men themselves.

Looking into the future, the State would appear to be in a position to provide employment for ex-Regular Service men on a larger scale than at present should nationalisation of any industry eventuate. Here the State could well reserve a percentage of the situations for men of good character who have served in the Regular forces. In Germany the railways, waterways and forests are State-owned, and this enables it to guarantee, for men of good character, civil employment on leaving the Services, thus removing from their minds that natural anxiety regarding the future, as their terms of engagement approached expiration.

Conclusion.

In putting forward these suggestions, it is quite realised that it would be impossible to train every regular Service man of good character and find State employment for every eligible ex-Service man; but, so long as the State needs fighting Services and the weapons of those Services become increasingly intricate, so long will this problem remain at the present high cost if it is not effectually dealt with.

Should any measures, based on the above remarks, eventuate, the effect may be far-reaching. In the first place, men of good character who had completed a certain number of years' service or attained a certain rank would have removed from their minds the worrying effect of the prospect of unemployment. With care-free minds they would be better able to concentrate on their profession, which would be a distinct gain to the State. This especially applies at a time when unprecedented prevalence of unemployment has forced itself upon the attention of all members of the community so that no class can escape its effects.

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[1] Certain classes of tradesmen in the Navy are already eligible and accepted by the union.

The State would further benefit by the continuous employment of proved loyal servants. Not only would they be loyal, but they would also appreciate the true value of discipline, a factor which is needed in all kinds of employment.

In the technical branches the State would gain by having a call upon trained men. The fighting Services may be called upon to come to the rescue of the State and perform the most disagreeable task they are ever required to carry out, *i.e.*, work in connection with strikes; so it does not appear to be unreasonable that the State should draw upon this enormous "pool" for its technical men in happier times.

In conclusion, it is hoped that some of the points mentioned will be explored, as it will be seen that the men, the fighting Services and the State all stand to gain by a solution of this problem.

THE NATIONAL ASSOCIATION FOR THE EMPLOYMENT OF REGULAR SAILORS, SOLDIERS AND AIRMEN.

THE National Association held its annual general meeting on Tuesday, 10th June, in the Lecture Theatre of the R.U.S.I. This Association was founded in 1885 on a voluntary and civilian basis on the occasion of a special meeting of "Persons interested in the question of employing Reserve Soldiers in Civil Life," with Field-Marshal Lord Napier of Magdala in the chair. The general policy, object and principles, as drawn up by its first Committee, were as follows:—

(1) The civilian element should always be regarded as an important factor in the management of the Association, *i.e.*, the work of the Association should be national.

(2) The Association is to be a free Labour Agency to assist Reserve and discharged soldiers of "good character" in obtaining employment, and to be a medium through which employers might seek men of high training and discipline. No fees to be charged to employers or employees.

(3) The Association should keep itself aloof from giving monetary help of any kind, so that men of the highest character and qualifications could utilise the services of the Association without loss of self-respect.

(4) The Association charges itself with the duty of urging on the public and on the Government the right of the soldier to civil employment after good service with the Colours, and of bringing to the notice of Parliament the duty of the State in its several Departments with regard to this matter.

(These principles still govern the actions of the Association, but now apply to Sailors and Airmen as well as to Soldiers.)

With the approval and support of the Secretary of State for War and Lords Lieutenant of Counties, branches were established at the chief commercial and industrial centres throughout the United Kingdom, with agencies at smaller places. During 1922, with the approval of the Admiralty and Air Ministry, the Association's operations were extended to include Sailors and Airmen.

The Association is distinct from all other bodies and organisations professing more or less similar objects, in the fact that it only registers the names of men of the Regular Forces who must have had at least three years' service, and whose Service characters and records are at least "Good." The exceptional position in which the Association has been placed by the Admiralty, War Office and Air Ministry, enables it to verify each man's records, and to recommend to employers only those men who can be guaranteed so far as Service antecedents, character and subsequent references are concerned. This constitutes a valuable safeguard to employers, and is very largely responsible for the success which has attended the Association's efforts to obtain employment (over 226,000 having been placed in permanent positions). The reputation for efficiency and character of the men registered on its books leads to a repetition of applications for men from those employers who make use of the Association.

As already stated, the Association takes no fees from either employers or men, relying for its income on:—

(1) Grants from the Admiralty, War Office, and Air Ministry.
(2) Subscriptions and donations from the Public.
(3) Subscriptions and donations from Service units.

As may be gathered from the principles and policy under which the Association was formed—as above described—the Association acts as a link between the civilian population and His Majesty's Forces, and relies upon an equal support from both. Recognising the value of the Association's work to the nation, the three Service Departments have in the past helped towards necessary expenses, but their grants are entirely voluntary and cannot be regarded as a Government subsidy in the strict sense, as they are subject to variation and approval from year to year. On the other hand, it is much to be deplored that the financial support from the civilian side of the link has, of late years, considerably diminished. What is now badly wanted is civilian financial support. This is touched upon in the fortieth annual report, recently presented to the public.

As regards the object of the Association, the fortieth annual report gives proof that many civilian employers recognise their responsibilities towards these men by affording them opportunities for employment on discharge, and this is being gratefully acknowledged.

The work of the National Association is very necessary since, on leaving the Service, Regular Sailors, Soldiers and Airmen of long service are at a considerable disadvantage in obtaining employment in civil life. They are in competition with men who have been in more or less close touch with trade conditions and industrial opportunities all their lives, who generally have behind them the support of Trade Unions, and whose experience has been of benefit to them in obtaining civilian employment. Most ex-Regular Service men have spent a large part of their lives abroad, often finding themselves stranded when arriving home on discharge, having lost touch with former friends and relatives. They are strangers to civilian life and its conditions.

It may be added that, though the Services turn out many highly-skilled men, further provision is now being made for those who are unskilled to fit themselves for civil occupation by receiving some training in various trades before they leave the Service.

THE PROBLEMS OF THE TERRITORIAL COMPANY COMMANDER.

By CAPTAIN C. N. LITTLEBOY, M.C. (T.A.)

MANY are the difficulties which confront a Territorial company commander. They meet him at every turn in his efforts to make his company —very likely a scattered one—as efficient as possible. Very seldom is this realised by those outside Territorial circles. It will, therefore, be the endeavour of this article to deal with some of these difficulties, and to make suggestions as to how they may be obviated.

For the sake of clearness these may be divided into the two categories of "exterior" and "interior": each will be dealt with in turn. Briefly stated, the "exterior" difficulties mainly refer to the attitude of the Regular Army and of the private citizen: in the case of the Regular Army it is due to misunderstandings and in the case of the private citizen to ignorance.

Most serving soldiers naturally compare the drill and "interior economy" of a Territorial unit with that of their own troops and, of course, the Territorials are found wanting. It may only have been "dreadful butter," but some Territorial units have been told that they, with their good sprinkling of war-service members, are as efficient as the young regular battalions in field-work. A Regular adjutant must have a rude awakening when, after being posted to a Territorial battalion, he discovers the wheels within wheels which must all revolve if the battalion is to be run smoothly. But it is also certain that many an adjutant is sorry to leave at the end of his three short years. The *esprit de corps* in a good Territorial battalion, where the only rule is "play the game," is unequalled.

The private citizen still looks on the Territorial soldier with eyes of pity: "Poor fellow, who knows no better than to play at soldiers in his leisure hours!" The citizen has forgotten the part played by the Territorials in the Great War: he does not even now realise that they are the real Second Line in the defensive organisation of the country; and when, perhaps, he gives a subscription to a prize-shoot, he gives it as a charity "to those poor fellows," and not as a small premium to a wonderful insurance scheme.

The "interior" difficulties affect the company commander in the training of his company and the greatest of these is ensuring consecutive individual training. Recruits who have 40 drills to put in during the year begin their training in March, followed by the trained men (with 20 drills) in mid-April. Dances, "pictures," illness and "backshifts"

all take their nightly toll, with consequent irregular attendance and many squads in various stages of training. With the arrival of May, range work is begun and consecutive training becomes even more difficult: this, of course, is due to the fact that the number of squads is increased again and not all Territorial N.C.O.s are willing to do more than their requisite number of drills to help the instructor.

Meanwhile recruits are being attested and probably not till the end of May is the company strength stable—and perhaps not even then: old-timers or the newly-joined find work in other parts and in due course are struck off the strength, and there comes a small dribble of recruits to replace these casualties.

Two months before camp, however, recruiting is stopped, but these casualties go on. Thus it is that sometimes a company commander goes to camp woefully under strength. It is one of the hardest things in the world to train and to inculcate the "family" spirit into an everchanging company.

There are difficulties, too, as regards leave for camp both for the men in the company and for prospective recruits (camp for the unemployed is, of course, a godsend). The officer possibly manages to squeeze in an extra private holiday, but not so the man—leave for camp may be granted for him but not an extra week which he could spend with his family. It is common knowledge in the Territorial Army that this is a bar to possible recruits, expecially to those who could afford the extra holiday if only they could obtain the necessary leave from their employer.

Such, then, are a few of the difficulties which have to be faced in brief outline. Long articles could be written on every item of the daily routine, showing the bookwork, the correspondence, the journeyings to and fro and, above all, the necessity for an excellent instructor. But even then they do not account, or only in part, for the shortage of officers and men in the Territorial Army. (On the 1st May the Territorial Army was 1,683 officers and 42,669 O.R. under establishment.) Neither is this shortage due to war-weariness. It is due to the selfish outlook of many of the young men of to-day. It is a hard thing to say, but nevertheless it is true: they think only of their own pleasure and feel no desire to serve their Country if that service entails any inconvenience to themselves.

How then can the lot of the company commander be made easier and the Territorial Army made more attractive with the resulting greater efficiency of the Territorial Army as a whole? The paragraphs which are to follow are not all the Law and the Prophets. They do however, contain certain suggestions which are worthy of careful consideration.

The daily and weekly newspapers would be doing a great service if they gave more prominence to Territorial activities in their columns. If each paper, especially the local ones, set aside half a column a week for Territorial news, local battalions and companies would be only too willing to co-operate by contributing short articles which would keep the activities of their units before the public. The public would then

take more interest and would be more willing to give practical support in the form of subscriptions to prize-shoots or by the purchase of tickets for some social event. Employers of labour would also realise what their Territorial employees were doing and would be more willing to help as regards leave for camp: it would be brought home to them that a man who joins the Territorial Army gives up a good deal of his spare time and that it is scarcely reasonable to expect him to devote most, if not all, his annual holiday to training.

There is no doubt that economy is needed in these times, but it is doubtful whether the cuts in the expenditure of the Territorial Army have proved expedient. The recent change to the £3 and £2 10*s*. bounties, with 20 and 40 drills respectively, has done harm to the efficiency and strength of the Territorial Army. It is practically impossible to "refresh" a trained man in 20 hours and to give a good grounding to a recruit in 40. It is here suggested that a return should be made to the £5 trained man's bounty and £4 recruit's bounty, provided each class completes 50 drills. Further, in Territorial eyes, the present bounties compare very unfavourably with the bounties payable to the two categories "B" and "C" of the Supplementary Reserve: members of "B" who do a little training and of "C" who do no training draw bounties varying from £20 to £8. In addition to this unfair comparison, lance-ranks in the Territorial Army are now unpaid. This, in the case of the lance-corporal, is a cruel economy and accounts for the difficulty company commanders experience in persuading men to begin to climb the ladder of promotion. The pay of the lance-corporal is only 4*s* 3*d*. a day and if all the lance-corporals in a battalion were paid for the 15 days' camp, the increase in cost per battalion would only be approximately £50—surely money well spent.

It is obvious that the efficiency or inefficiency, of a company must largely depend on the Instructor, the only "full time" man in the company. It is here that the regular battalions—often the sister battalions—can help by sending their very best sergeants as instructors. It is no light thing for a colonel to have his best N.C.O sent away on a three year attachment to a Territorial unit, but it must, or should, be so. Further, an improvement on the present practice of sending N.C.O.s who are within three years of a pension, would be to post to Territorial units N.C.O.s who, after their three years' attachment, would have to return to their own battalions to complete their service. It would then be to their advantage to secure an excellent report and the complaint about poor instructors would be rare indeed. Unfortunately, this is not the case now.

"Help those who help themselves" is a true adage. It has been shown how the press, the War Office and the Regular Army can help the company commander to contend with and overcome many diverse difficulties. How then can the company commander help himself?

Drill halls must not be regarded solely as places in which to drill. The company commander, although a disciplinarian, must also be to

his men a philosopher and friend: he must know all about them, their families and the places in which they live or work: he must be ever ready to lend an ear to their troubles or to give advice if need be.

Then the social side of the company must be developed. A drill hall is naturally well-adapted for whist-drives and dances (and here it might be mentioned that a concrete floor is no obstacle, as such a surface of average size can be covered with movable canvas for £25) as also for carpet bowls, five-ten and boxing. But, whatever amusement is organised, it must be remembered that, if such recreation is to benefit the majority, it must be so conceived and organised that it will provide for active instead of passive participation. It is easy to cater for those born to excel—perhaps 10 per cent. of any company—but what of the remaining 90 per cent.? The solution will be found in developing the "factor of energy." That is to say, that greater stress should be placed on the effort put into a sport or competition by a number of men than on the skill shown by a few. But this is not the place to develop this theme further: by enthusiasts it can be introduced into all Territorial competitions.

If then every company commander had a fixed determination to improve this "factor of energy" both in work and play, and this determination was backed by sympathetic understanding on the part of both the public at large and the Regular Army and by a little more financial aid from the authorities-that-be, the future of the Second Line would be rosy indeed. Strive as he may, the company commander cannot attain the best results without outside help—he cannot make bricks without straw.

Understanding will come with publicity and with closer *liaison* between the Regular and Territorial Armies. But it is feared that the Treasury may not open its purse strings for many years to come. Yet only a small sum in comparison to that already expended is needed. At the moment there is a danger of ruining the Territorial ship for a ha'p'orth of tar. Possibly, though, mine is only another voice crying in the wilderness. But as long as officers and men join the Territorial Army with full intent to do their best, there need be no fear that their part will not be played nor their traditions upheld.

SPANISH MOROCCO:

A RECENT IMPRESSION.

By LIEUTENANT G. H. J. EVANS, R.N.

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SPANISH Morocco[1] is a country of limited possibilities. It is most decidedly not flowing with milk and honey. Sown with mountains in number beyond counting, and with tumbled hills that resemble mountains in their inaccessible qualities, it has few districts capable of cultivation on any scale. Indeed, with the exception of the Rio Martin valley and the Khlot territory in the south-west, there are none at all. At the very best, with every aid known to science, agriculture could never be advanced to an export stage. Even to make the country self-supporting, years of peace and hard work would be essential, since the soil is of the worst order and the curse of palmetto is almost general. Stock-raising could certainly be increased to prosperous figures, for there is excellent grazing here and there all over the country; but this, again, needs peaceful times and security of tenure. Viniculture might prove a boon, as the climate is favourable and a small area could produce a valuable return; but viniculture has never been tried. Mineral exploitation, often cited as the economic remedy, is a hope not to be lightly encouraged. There are valuable iron mines near Melilla, and they are being worked. There is probably tin near Tetuan. But Melilla, strictly speaking, is a Spanish possession and not in the Protectorate at all, and the mineral deposits in the Riff, said to be of iron, copper, zinc and manganese, are of very doubtful worth. In many cases there are only native reports to vouch for their existence.

Last year the Protectorate budget was made to balance. There was even a surplus of several million pesetas. But taxation is almost entirely indirect, and the money came actually from Spanish pockets, as the only people in the country with any money are the Spaniards. The budget, moreover, took no account of any military expenditure, and there are upwards of 130,000 men in the army of occupation. The Protectorate has really no separate economic existence and lives on Spain. Army pay (which is nearly all spent in the country), military disbursements of various kinds and kindred expenditure, are keeping Spanish Morocco and its people alive. Many of the traders, both Moors

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[1] *See* map, p. 544.

and Jews, realise this, and, however much they may grumble, they are terrified at a Spanish evacuation or even of a sensible reduction in the numbers of the army. Tetuan has now practically no trade save in military supplies. Both Ceuta and the seaports of the Protectorate—Rio Martin, Arzila and Larache—are in a like case.

It is into this unproductive land that Spain has poured her men and her millions for more than twelve years. There has been no return, and actually to-day she holds far less territory than she did a year ago, while the drain on her treasury and her manhood still continues. If she is to reconquer what she has lost and to subdue the Riff chieftain who leads her enemies, yet more blood and more money must be lavished, and, even with victory and peace achieved, no material return may be looked for for many years.

The situation presents a problem that no European Power with interests in North Africa, or indeed in any Mohammedan country, can view with unconcern. There are always people ready to embarrass a friendly nation, and several misguided assurances of private sympathy for Abdel Krim have convinced the Riffs that a feeling hostile to Spain exists among other Governments and peoples. Nothing could be further from the truth. If a national movement in a Mohammedan country aims at the overthrow of a Protectorate held by a Christian Power and that movement achieves even a measure of success, it tends to take on the colour of religion, and its effect is very widely felt. No one, then, can watch without interest the manner in which General Primo de Rivera addresses himself to the solving of his problem.

There can be little doubt but that the Dictator is regarded with great respect by the majority of his countrymen. Even his many enemies admit that he has the courage of his convictions, and that, having chosen his path, he follows it without swerving to either side. He is contending with innumerable difficulties, for Spanish authority, both military and civil, is racked with jealousies and riddled with intrigue. But he gets things done, even if he has not accomplished all that the Directorate announced as its programme. Certainly in Morocco, with the material to his hand, he has worked wonders.

Had he not devised the Primo Line and insisted, in the face of much opposition from the Army, on systematic retirement to its positions, the Sheshauen retreat would have lingered and become, beyond any doubt, a second Melilla. That line has now been strengthened throughout the winter and the spring, until an attack that can break it must be on a scale hitherto never attempted by the Riffs and their Jebala allies. It is also an effective blockade, for the Moors are cut off from the rich district of the Khlot, from the Rio Martin valley, from Tetuan, from Tangier, from Arzila, Larache and Alcazar Kebir. The only market towns left to them are Sheshauen and Tafersit, both of which were wont to draw their supplies from Tetuan or from the French zone in the south. In view of recent events, the latter source

of supply is now absolutely closed, and there remain only the small harvests of the Wad Lau and of the tiny arable patch in every valley that boasts a village. General de Rivera's plan is to starve the tribes into submission, and, as the first harvest, which is now being gathered, has proved very poor, the besieged are sure to feel the pinch. The large tribe of the Anjera, which is cut off from its allies by a section of the Primo Line and also closely invested both by sea and by land, is expected to make the first submission. It is waiting, however, in the hope that its friends will break through to its succour. There are 300–400 Riffs in the Anjera country, and these preach daily of help from the south. Abdel Krim's power over the Jebala, and, to a certain extent, over his own followers, rests on continued military success. Inaction and, later on, hunger due to the blockade, would cost him his leadership. Even inaction of a prosperous and peaceful kind would weaken his authority, for the tribes of the Riff, with the possible exception of the Beni Tuzin, are implacable in their hatred of the Spaniard, and the Jebala Kabyles, hereditary enemies of the Riffs, only acknowledge his chieftainship for purposes of war. His present campaign against the French—a campaign in which the border tribes probably forced his hand—appears likely to end in his defeat. As it is improbable that the French will pursue him into what is technically the Spanish zone, he will be able to choose between comparative inaction throughout the summer or a speedy movement against the Spaniards in order to vindicate his prestige. There can be little doubt that he will choose the latter, and, since his chief anxiety is to retain the adherence of the Jebala, the fighting will probably be largely in the Western zone.

The probable points of attack are:—

(1) Where the Primo Line, almost on the Tangier frontier, turns south by Cuesta Colorada.
(2) The Primo Line between Arzila and Larache.
(3) Alcazar Kebir and the Khlot district.
(4) Some place on the Tangier-Tetuan road, in order to join forces with the Anjera.

That he will break through at any point is extremely doubtful. The fighting last summer was of an entirely different character. Attacking isolated posts or an army in retreat is a simple matter compared with an attempt to pierce a close line of blockhouses.

If the Primo Line holds, as no one who has seen it can doubt that it should, the Anjera will probably submit, and, later on, other tribes will follow its example. General de Rivera has announced that he will receive no submission without surrender of rifles. If, when a tribe has complied with this condition, he can adjust his lines to protect it from its late allies, he will have gained far more than the actual ground. If not, the next tribe will think twice before it deprives itself of one protection without receiving another.

The situation is complicated by the fact that Abdel Krim holds upwards of 1,000 Spanish prisoners. Negotiations for their repatriation are said to have been proceeding for some time, but without result. There is no concession except money that General de Rivera can offer, and the price is certain to be high. Yet the prisoners cannot be abandoned for ever. This consideration must weigh heavily with the Dictator in opposition to his policy of blockade without offensive military action. He has, however, the advantage, never enjoyed before by any High Commissioner, of being completely free from any control from Madrid. He is himself the Government. If he cannot succeed in Morocco, it is questionable who could.

FRENCH MOROCCO:

THE SITUATION BEFORE THE OUTBREAK OF THE PRESENT HOSTILITIES.

(Reproduced by permission of the General Staff, War Office.)

THE Spanish zone of Morocco has never experienced so disturbed a season as that which is now closing—excepting perhaps in 1921. In the French zone,[1] on the other hand, military operations had remained very restricted for the past 18 years, except that the French had found need to fight in the Shereefian Empire in order to bring the rebel tribes under the Sultan's authority; these operations, however, had not proved costly. At first sight such a contrast may appear paradoxical, but if the matter be more closely examined, this contrast becomes fully comprehensible, for the tranquillity that has prevailed within the French zone has been the indirect but logical result of the upheavals that have occurred within the Spanish zone.

It must be remembered that, after the campaign of 1923, the dissident regions still existing within the French zone were three in number:—

(1) In the north, a long and fairly narrow strip, bordering upon the Franco-Spanish frontier.
(2) In the centre, the *tache de Taza*, very limited in extent, owing to the progress made that year and reduced to two isolated mountainous groups, extending over a small area but most difficult of access.
(3) In the south, the region in which the Middle and the High Atlas ranges join.

To these three dissident regions existing within the actual country of Morocco—known as Morocco proper—must be added those districts of the Sahara in the extreme south, situated beyond the mountains; but these distant and sterile regions are devoid of any military, political, or agricultural value; their pacification may, therefore, be postponed as long as may be desired, without involving the smallest disadvantage.

On the other hand, it is held to be desirable, for several reasons, to put an end, as soon as possible, to the resistance of the unsubdued tribes within Morocco properly so called. In the first place their supervision demands a large number of troops, whose time is wasted in the posts, while at the same time it involves difficulties in employing them elsewhere in case of need. Furthermore, this resistance is a bad example

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[1] *See* map, p. 544.

to the rest of the population. Lastly, the impossibility of penetrating into the dissident territories prevents the completion of the road system of the Protectorate and the exploitation of the full water-power of the country, of which there is no very great supply.

It is understood that, during the winter 1923–24, the Higher Command laid down a programme of action for the ensuing summer. At the beginning of 1924, it had been decided to carry out three successive operations in the course of the year, in the north and the centre of Morocco and, if necessary, in the south. The first included the occupation, in the region bordering upon the Spanish zone, north-east of Fez, of the right bank of the middle Ouergha, along a front of about 30 miles and to a depth of 12 to 18 miles. When this was effected, two offensives were contemplated in the Taza zone, the result of which would have been to reduce its area by about one-third and to make it very difficult for the fierce mountaineers who had taken refuge there to inhabit the remainder of the zone.

It is clear that, in order to carry out operations into the *tache de Taza*, with the Franco-Spanish borders to the rear, there must be no fear of any complication from that quarter. Now the rebellion on the Wadi Lau (north of Sheshawan) broke out in June, 1924, and extended before long over the whole western part of the Spanish zone, forcing the French to postpone their enterprises in the centre of Morocco, in order to concentrate all their forces upon the supervision of the frontier to the north of Fez and Taza. This was the reason why the original programme for 1924 could not be carried out.

The occupation of the right (northern) bank of the middle Ouergha had, meanwhile, been completed under excellent conditions. It offered, moreover, but little difficulty. In fact, the ground which the French Command wished to occupy slopes gently upwards from the banks of the stream to a ridge of moderate altitude. Several tributaries of the Ouergha, running at right angles to its course, divide this region into a certain number of compartments, a fact which rendered it possible to proceed by successive stages. The inhabitants are under the jurisdiction of the great confederation of the Djebala, who have for many years been on bad terms with the population of the Rif. It should be remembered, in this connection, that the term Rif—which is often wrongly applied to the whole of the Spanish zone—refers, in reality, only to the central part of the country bordering upon the Mediterranean, between the Ghomara and the mouth of Wadi Kert. The mountains extending to the west and south-west of the coastal region, from the road between Tangier and Tetuan to the upper Ouergha, inclusive, form the domain of the Djebala.

In consequence of the prestige gained by the annihilation of the Spanish Army at Melilla three years ago, Abd el Krim succeeded in bringing the whole Riff under his rule; he then tried to extend his domination over the Djebala, but met with more resistance from them. At the close of 1923 he did, however, succeed in establishing his authority

amongst those whose territories lie farthest from the mass of the Confederation—the tribes living in the valley of the upper Ouergha, above Bou-Adel. In 1923, one of these tribes, weary of the exactions of its new master, rebelled against him, but was completely defeated and forced once more to submission to his authority. The populations settled on the right bank of the middle Ouergha, between Bou-Adel and Ourtzagh, unwillingly consented, under the influence of fear, to supply the Rifian leader with subsidies and warriors. Emboldened by success, Abd el Krim then resolved to push on westwards and reduce the powerful tribe of the Beni Zeroual. The latter, although they have not yet accepted the authority of the Moroccan Government (Makhzen), are on the best possible terms with the French through the intermediary of their most respected Chief, Abdesslam Derkaoui. They considered themselves strong enough to resist the invaders, and when attacked by the latter in April, 1924, they inflicted upon them a terrible defeat.

It has been necessary to dwell to some extent upon these rivalries and tribal dissensions, in order to show clearly what was the situation in the month of May, 1924—the time at which the season is sufficiently advanced to allow of the starting of operations without fear of interruption from bad weather. Circumstances could not have been more favourable for the French. The tribes on the right bank of the Middle Ouergha were only too anxious to be freed from Rifian authority. When, therefore, General de Chambrun, commanding the Fez region, crossed the river at the head of the Colombat and Cambay columns including 11 battalions 3 corps of native irregulars (*goums*), 3 squadrons and 10 batteries, the four tribes, whose territories constituted the zone to be occupied, welcomed the invaders as liberators, rather than as enemies. The French started without delay upon the construction of a series of fortified works, facing north, for their protection.

Abd el Krim could not accept this defection, which involved a serious loss of his prestige. On 20th and 21st June, bands of Rifians, strongly protected on the flanks, made a reconnaissance of the new French posts and on 2nd July, attempted to carry one of them but were repulsed with heavy casualties, whilst the French losses numbered no more than a dozen killed and wounded.

These were only preliminaries. The enemy, who is undoubtedly gifted with military judgment, understood that it would be advisable not to repeat the attack upon the front which was being consolidated—where the French disposed of comparatively strong forces—but to attempt to penetrate their former line, where there were fewer posts, and a shortage of mobile troops to hold them. On 23rd July, 3,000 men of the tribes faithful to Abd el Krim succeeded in infiltrating between the French works in the region of the Upper Leben and in regrouping farther south, two days' march from Fez, and one from Taza. Not a moment was to be lost. The next day it was possible to collect six *escadrilles*, which proceeded to the valley of the Leben, and attacked the enemy with bombs and machine guns, temporarily pinning

him down on the spot. Owing to this pause, it was possible for the Colombat column to come by forced marches from the banks of the Ouergha, to overtake the native troops—surprising them in a somewhat close formation—to break them up, and drive them, in hot pursuit, beyond the line of posts which they had crossed two days earlier. More than 150 men were left on the battlefield. This was a serious reverse for the Rifians, and the scale of casualties was such as they had not been accustomed to in fights in the Spanish zone.

Abd el Krim did not, however, disarm. Having failed on the north of Fez and Taza, he hoped to secure better results farther east, in the direction of the Muluya. He brought pressure to bear upon tribes of the Mtalsa, whose territory is astride the Spanish and French zones, but which had hitherto remained independent. These Mtalsa have long been known as inveterate plunderers. Abd el Krim pursued his usual tactics—never to appear himself in action and not to employ bodies of Rifians, but to incorporate them with other tribes, whom he induces to fight for him—and sent the Mtalsa, guided and supported by his men, against the two posts at Hassi Wenzga and Hassi-Medlam. These posts, attacked on 29th August, were soon completely invested. But the counterattack was ready. The arrival of two battalions from Algeria enabled Colonel Cambay to assemble in the valley of the Muluya a mobile group of five battalions, three squadrons and three batteries, with which he set out on 4th September. The very next day he relieved the two fortified works and put the enemy to flight after a very slight resistance. The French had only six wounded. This was the last offensive carried out by Abd el Krim. After this, he preferred to devote all his efforts to fighting the Spaniards.

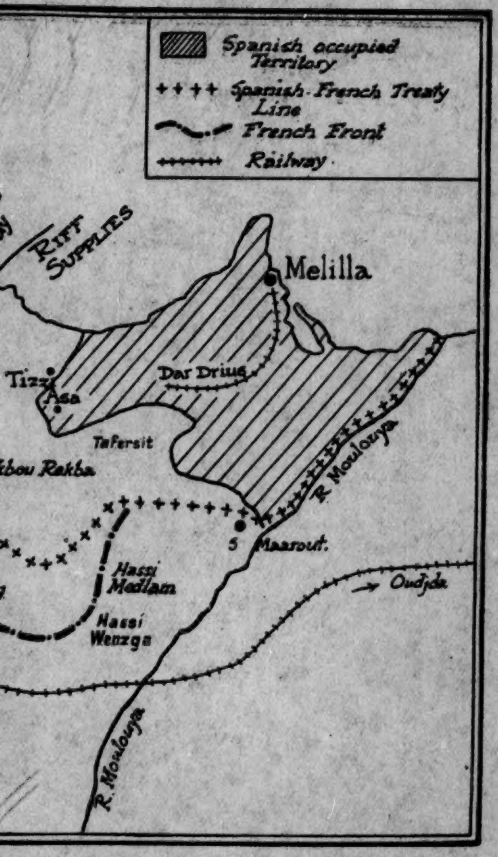
For some time past, the Beni Zeroual Chiefs had been appealing to the French for support. At the beginning of September it was decided to accede to their request to occupy the southern portion of their territory, to the north of the Ouergha, below Outzagh—that is, about one-third of the whole—although this operation had not originally been contemplated. It had the advantage of rectifying the French line, by eliminating the salient which had just been formed in taking up a position farther upstream without, however, bringing it too far in advance. The remainder of the year was employed in consolidating the back areas of the northern front, marking out roads and tracks passable for vehicles and building bridges.

The results of the campaign of 1924, were therefore, the pacification of a region of no great extent, but rich, and having a population of about 50,000. The total casualties amounted to 9 officers and 193 men killed or wounded, as against 92 officers and 2,163 men in 1923.

In the centre and the south of Morocco the French were unable to send out any mobile column, and Algerian district commanders were left to their own resources and could not, therefore, accomplish much. The number of submissions within these regions was insignificant, excepting in one of the tribes in the *tache de Taza*—the Marmoucha,

who had suffered severely during the engagements of the previous year. The French succeeded to an appreciable extent in breaking their resistance, by skilfully conducted political action. But political action, however well conducted, soon evaporates, unless supported by military action. For this reason, it was desirable to reinforce the force of occupation this year, 1925, in order to be able, on the one hand, to face Abd el Krim, and on the other to resume—in the *tache de Taza* and the south of the Middle Atlas—the operations contemplated, which were unfortunately interrupted. It is worth remembering the old saying: "In Morocco, a stationary situation is impossible; where we do not advance, we fall back."

Tanger
Ceuta
ANJERA
Tetouan
RIFF
SUPPLIES
Arcila
QUEBALA
R. Martin
R. Lau
Larache
R. Loukkos
Kniot
Alcazar
Sheshauen
ZERQUAL
R I F F
Penon de Velez
Ajdir
Athuzemas Bay
RIFF
SUPPL
Tizz
Asa
Ouezzan
Taberrant
Akbou Rekba
Ouezrala
Ouezar
Sker
Djenane
Kalane
El Had
An Defali
R. Ouergha
Kelkyne
Kelaa des Sless
Bab Mzab
Leben
Dahar
Bab Merouj
Rabat
Taza
Fez
MAROC
FRANCAIS
Meknes


Spanish occupied Territory
Spanish-French Treaty Line
French Front
Railway
Melilla
Dar Driuch
Tafersit
R. Moulouya
Maarouf
Hassi Medlam
Hassi Wenzga
Oudjda
R. Moulouya

DEVELOPMENTS OF ARTILLERY AND MECHANICAL TRACTION IN THE FRENCH ARMY.

A review of a recent French work by Lieutenant-Colonel Rimailho, entitled "Artillerie de Campagne." (Published by Gauthier-Villars, Paris.)

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UNDER the title "Artillerie de Campagne," Lieut.-Colonel Rimailho has recently published a work which not only merits a careful study by its intrinsic value but has two special claims to notice. Firstly, Colonel Rimailho, the author, was one of the four men whose names are associated with the design and perfecting of the 75 mm. gun, a weapon which, 20 years after it was first taken into service, was easily the best field gun used by any belligerent Power. He also designed the heavy howitzer in use in the French Army at the beginning of the War, a weapon which embodied some extremely advanced ideas, such as semi-automatic loading and breech action, but which was abandoned early in the campaign owing to its lack of range. The designer admits this defect, but says the Government made the fatal error of stipulating that some obsolete 155-mm. gun tubes should be utilised. Rimailho's views would thus in themselves carry considerable weight, and the position which he holds lends additional interest to them. Having disagreed with the authorities over numerous points, he accepted the post of artillery designer to the St. Chamond firm, which ranks as the second largest French armament firm as regards gun construction (Schneider being the most important). Several of the equipments now in service in the French artillery are of St. Chamond design and construction, and, though the book is obviously intended to further St. Chamond sales by drawing attention to the excellence of those wares, it is equally obvious that a firm of such standing would not spend time and money on producing and perfecting designs unlikely to find favour in official eyes. The chief interest of the book, therefore, lies in the valuable pointer it affords to possible developments in artillery equipments, and especially in mechanical traction, in the French Army.

The book is divided into four main sections :—

(i) French artillery from 1870 till the invention of the 75 mm.
(ii) Invention of the 75 mm. and evolution of French artillery up to 1914.
(iii) Guns in service in the Great War.
(iv) Guns of the future.

The first three sections form an interesting historical sketch and, incidentally, show the character of the author in a pleasant light, inasmuch that he gives full credit for their work to his collaborators and even to rival designers.

In the fourth section, now to be discussed, Colonel Rimailho sets out his ideas as to how the gunnery desiderata for the various types of weapon may be met, and how the degree of mobility required may be attained. To give a clear picture of the requirements which he proposes to satisfy, he gives in the first chapter a sketch of the opening phases of a war of the future. He is, however, no irresponsible "futurist," but a business man with goods to sell, so it is clear that his "war of the future" is a war which might commence to-morrow. His campaign develops, therefore, in a way not vastly dissimilar to the events of the

last war. Here he is at one with the teaching of the French Staff: "We may prepare for the future, but we must be ready to fight with the weapons of to-day."

He then proceeds to examine each category of weapon, to lay down the requirements which each should fulfill and to show how the gun made—or designed—by St. Chamond "fills the bill."

The equipments are treated in the following order:—

(1) Infantry gun.
(2) Close support artillery (*d'accompagnement*).
(3) Field artillery (*appui direct*).
(4) Motor vehicles for artillery purposes.
(5) Mountain guns.
(6) Cavalry guns.
(7) Anti-aircraft guns.
(8) Heavy field guns (H.T.).
(9) Heavy field guns (M.T.).
(10) Caterpillar mountings.
(11) Railway guns.

Chapter 2.—Infantry gun (drawn by one horse or divisible into man-loads).

The following desiderata are assumed:—

Object of the gun.—To deal with unexpected resistance and to break up counter-attacks in process of development.

Requirements.—Light shell (3 kg. = 6½ lbs.) to ensure adequate supply. Explosive effect to equal 75 mm. shell. Divisible into loads, maximum weight 30–45 kg. (66–99 lbs.). Howitzer type of weapon, maximum range about 1,500 m. (1,640 yards).

Performance of gun (1923 pattern)—

Calibre 75 mm., muzzle loading. Shell weight, 3 kg (6½ lbs.).
Bursting charge, 750 gms. (1 lb. 10 oz.).
Buffer and recuperator, (not described).
Maximum range, 1,800 m. (1,970 yards).
Elevation, 0–70°.
Traverse, 40°.
Height of sights from ground, ·330 m. (13 inches).
Variable charges contained in brass cartridge cases (loaded from breech).
Mounted on a triangular chassis with two spades.

45 mm. anti-tank gun (1923 pattern), horse-drawn.

This gun has been designed to provide the infantry with an anti-tank weapon. Full details are not given, but the A.P. projectile is capable of penetrating 3 cm. (1·18 inches) of armour at 300 m. (330 yards). It has a field of fire of 7° and a maximum elevation of 45°. The height of the line of sight above the ground is 20½ inches. From the illustration and letterpress it appears that the gun is intended to travel on its wheels and not to be split up into loads.

Chapter 5.—Motor Vehicles for Artillery Purposes.

For a reason which will shortly be apparent it is convenient to deal first with chapter 5, where the author discusses motorisation. He admits that his countrymen are somewhat more conservative than the British and Americans in motorising the artillery, but points out that the question of petrol or other fuel supply has not yet been satisfactorily solved. Nevertheless he thinks that his

countrymen are wrong in hesitating to abandon the horse for the machine. France is a country of small holdings, where motor traction for agricultural purposes has signally failed.[1] Take away their horses from the cultivators in time of war and the failure of agriculture will bring about defeat. France is short of men, and tractors require less *personnel* than do horses; their adoption in the artillery would, therefore, result in a very valuable addition of man power. All the attempts to move a division by mechanical transport in the last war involved its arrival minus its guns (which, being horse-drawn, moved more slowly) and so shorn of half its fighting power. The petrol supply problem will yield to a serious attempt to tackle it, and, in any case, the motorisation of the whole artillery would only increase the petrol consumption of the army by 10 per cent. The type of vehicle required is then discussed. Pointing out the obvious failure of all attempts made during the last war to combine tactical and strategic mobility, he discusses recent attempts to solve the problem, *e.g.*, the flexible track of the Kegresse type and the multiple wheels system produced by Renault. The latter system is held advantageous for light loads, but vehicles so constructed are liable to be stopped by trenches or ditches; whilst the former involves a heavy petrol consumption and the rubber treads are very vulnerable to shell splinters.

His firm has, therefore, developed a type of vehicle combining wheels for use on roads and track for cross-country movement. In this vehicle the chassis is jacked upon the wheels or lowered on the tracks, the operation being in most cases effected in 10 minutes by the crew of the gun, tank, or tractor, unaided.

The first vehicle they attempted to construct was the "Chenillette St. Chamond, 1921". This only weighs 3 tons, does 12 m.p.h. on wheels and 3 m.p.h. on tracks and carries ½ inch armour (⅝ inch vital portions). It is armed with a machine gun, is manned by two men, and has a speed of 12 m.p.h. on wheels and 3 m.p.h. on tracks.

From this the firm evolved an infantry tractor, mounted on a chassis practically identical with that of the Chenillette, with the object of carrying an *équipe* or squad of 6 men and towing a trailer containing ammunition. This light tractor weighs 3 tons, like the Chenillette, and is provided with a 15 h.p. engine.

The firm next produced a somewhat larger chassis with a 30–40 h.p. engine which, with some modifications as regards gearing, served as the basis of the following designs:—

Light artillery tractor.
Motor mounting for close support gun.
Light gun tank (armed with 45 mm. gun).
Light machine gun tank (armed with 2 machine guns).

The weights, as will be seen from the table given in the Appendix, vary from 4·8 tons for the tractor unladen to 8·6 tons for the gun tank. The performance also varies, but, generally speaking, the tank or tractor attains a road speed of 10–12 m.p.h. on wheels and a cross-country pace of 3 m.p.h. on tracks.

Next in order come three heavier models—

(i) Army Corps type artillery tractor (60 h.p. motor).
(ii) Army type tractor for heavy equipments (120 h.p.).
(iii) Lorry tractor for employment on the Lines of Communication (80 h.p. motor).

[1] *See* note, p. 538.

The chassis of the army corps type tractor serves, with slight modifications, as a platform for the 75 mm. cavalry gun. The weights of all three vary between 7 and 10 tons.

In the lorry tractor some modifications have been introduced with a view to obtaining greater simplicity; in particular it has not been considered necessary to make the rear wheels swing up as far clear of the ground as is done with the other models. Apparently it is fitted with a 5-speed gear box as there is a gear lower than 1st gear, which is termed *vitesse de dépannage*.

Details of performance are given in the Appendix.

The St. Chamond firm has also produced a small tractor for use with mountain artillery, but, as this is only provided with tracks, it may be omitted from the present review.

In short, the firm appear to be standardising five different types of chassis :—

(1) 15 h.p. chassis (Chenillette).
(2) 30–40 h.p. chassis (field artillery tractor).
(3) 60 h.p. chassis (corps artillery tractor).
(4) 120 h.p. chassis (army artillery tractor).
(5) 80 h.p. tractor lorry.

Reference will now be made to the chapters dealing with the various categories of artillery in order to show how Colonel Rimailho has combined the above mentioned chassis with an up-to-date weapon to meet modern requirements.

In chapter 3 these requirements as far as they concern close support weapons are examined. The objective will always be a skilfully concealed centre of resistance which has escaped bombardment. The gun to deal with it should be a small quick-firing howitzer, ranging up to about 2,500 metres (2,750 yards), with a highly efficient shell weighing about 6 kg. (13¼ lb.). Horse-traction is out of the question for such a weapon owing to the vulnerability of the teams, and the only point at issue is, should the gun be self-propelled or hauled by a tractor ? Colonel Rimailho thinks it should be self-propelled for the reason that the battery commander will be reluctant to part with his tractors when his situation is uncertain, and thus the advantage claimed for the separate tractor, that it can be taken away under cover, is always lost in a critical moment.

He then illustrates the St. Chamond solution of the problem, which is a small 75 mm. howitzer mounted on chassis No. 2 above, the crew being protected from bullets and splinters by armour (thickness not stated).

Chapter 4.—Field guns (matériel d'appui direct).

Of the five weapons described in this chapter, two at least are simply adaptations of the existing 75 mm. gun. It is not surprising that endeavours should be directed to improving the 75 mm., since it exists in enormous numbers and is mostly in the hands of impecunious Powers very unlikely to permit themselves the luxury of a new field artillery equipment. One suspects the firm of having arranged potential customers in order of their financial embarrassments, for the first pattern shown is obviously for " poor relations."

Denoted " 75 mm. St. Chamond, 1897–1923," it utilises most of the existing elements of the 75 mm., but introduces an open trail and a variable recoil buffer; 40 degrees elevation can thus be obtained and a range of 11,000 metres (12,000 yards) is possible with the streamlined shell.

The St. Chamond 1922 model 75 mm. is very similar, but has an improved breech of the vertical sliding block type. The existing pattern was never intended

to swing in an open trail, and its machining, as the author pointed out, diminished the possible output appreciably during the war.

Next in order comes the 75 mm. *puissant*, comprising an improved gun on a mounting very similar to those already described, and having a maximum range of 13,000 metres (14,200 yards).

Colonel Rimailho then draws attention to the need for plunging fire which beset the French constantly during the war owing to the lack of a small field howitzer.

Referring to the difficulties attendant on the attempts to obtain a steep angle of descent by using reduced charges in the 75 mm., he recommends the 105 mm. howitzer designed by St. Chamond.

Its characteristics are :—

Range	10,000 m. (= 11,000 yards).
Weight of shell	16 kg. (= 35 lb.).
Maximum elevation ...	45 degrees.
Buffer	Standard St. Chamond with variable recoil.
Carriage	Rear trunnions; weight of gun balanced by spring.

In the preceding pattern the defect of a small vertical field of fire has been remedied, but that of a restricted traverse still remains. In the 75 mm. G.C.T. (*grand champs de tir*) this fault has been remedied and the gun rendered capable of high-angle fire from 45 degrees to 65 degrees. Colonel Rimailho is not an advocate of the split trail for field guns; he considers that it has too many joints and that a rigid mounting is preferable, and he makes the surprising statement that the split trail was officially rejected for field guns by the French authorities in 1918. Again, the 75 mm. gun is utilised with the sliding block breech mechanism as variable recoil buffer and rear trunnions, balance being maintained by a spring. The total weight has been kept down to 1,325 kgs. (2,920 lb.).

It is suggested that this gun could be used for anti-aircraft fire, and that all field guns will in the future be required to co-operate in the struggle against hostile aircraft, so great will be the influence of aircraft upon land operations.

Colonel Rimailho next proceeds to make some interesting observations on the field artillery of the future. Hitherto (he says) the tendency has been to regard the field howitzer as the complement of the field gun; but the whole experience of the last war indicated that the reverse should be the case, the howitzer being the main weapon and the field gun simply used to deal with targets which are beyond the range of the howitzer. If horse traction is still retained, the designer is limited to weights of 2½ tons behind the team and 1½ tons in action, and with that limitation he has to obtain a howitzer ranging up to 12 km. (13,100 yards) and a gun with a range of 14 km. (15,300 yards). If the howitzer is adopted as the principal weapon, the calibre of 105 mm. will have to be reduced, because the 16 kg. (35 lb.) shell, however valuable in effect, would mean a reduction of the ammunition available to one-third of the corresponding figure for a 6 kg. (13 lb.) shell. The latter figure is too small to produce a good destructive effect, and the designer will probably have to strike a mean with a calibre of 90 mm. and a 12 kg. (26½ lb.) shell. Equally he will have to abandon the calibre of 75 mm. in order to obtain his maximum range of 14 km. (15,300 yards) without utilising an excessive initial velocity, and he will probably be led to adopt a calibre of about 80 mm., with a shell weighing 8 kg. (17½ lb.).[1] Thus the calibres of howitzer and gun tend to approach each other, and a useful economy can be secured if the same mounting can be utilised for both.

[1] Skoda have constructed a gun of calibre 83·5 m., with a range of 13½ km. (14,800 yards).

The factor obstructing the adoption of a single weapon to perform the functions of both gun and howitzer is the erratic behaviour of modern propellants when the density of loading descends below a certain value, and in variations in the *pression de forcement* or pressure required to make the shell take the rifling. If this is kept as low as possible its variations will have less influence upon the shooting with small charges, and the author states that, using two types of shell for long and short ranges, his firm has obtained results from a 75 mm. which prove the production of a single weapon a feasible proposition.

Colonel Rimailho concludes the chapter by a description of the 75 mm. gun on self-propelled mounting. The gun is the 75 mm. *puissant* or super 75 mm., attaining a range of 13 km. (14,200 yards).

Chapter 6.—*Mountain Artillery is dealt with.*

Colonel Rimailho considers that here it is not desirable to have a gun and howitzer of the same calibre, since the 155 mm. howitzer will not normally be available in mountain warfare and consequently the howitzer ought to be sufficiently powerful to knock out any works likely to be met with. The expression " gun " is really a misnomer in this case since the weapon the author considers desirable is a gun-howitzer capable of high angle fire with a shell of 5 or 6 kg. and a maximum range of 8 km. (8,760 yards). For foreign service the gun ought to be divisible into loads not exceeding 110 kgs. (242 lbs.) and be not wider overall than 1 m. 200 (3 ft. 11½ in.). Its calibre is 75 mm. and it ranges to 8,700 m. (9,500 yards) with the normal 75 mm. shell and to 9,000 m. (9,850 yards) with a special shell. The vertical field of fire is from — 10° to + 45°, and 10° of traverse is provided by a small pivoted top carriage. The gun weighs between 700 and 800 kg. (1,540 and 1,760 lbs.) and is transported in 7 loads :—

Gun.
Breech and breech ring.
Buffer and sights.
Cradle and top carriage.
Axle and half trail.
Half trail, spade and wheel.
Shield.

The trunnions are set to the rear and a laminated spring balances the preponderance. The recoil is variable.

The 105 mm. mountain howitzer has a practically identical carriage, and fires a shell of 12 kg. (26½ lbs.) to a range of 8 km. (8,750 yards). Maximum elevation, 65°. Carried in 8 loads. Total weight 780 kgs. (1,720 lbs.).

A small semi-automatic mountain gun, calibre 70 mm., is also described.

Chapter 7.—*Artillery of the Light* (*Cavalry*) *Division.*

Colonel Rimailho's conclusions as regards this class of artillery may be summed up very briefly.

(1) As in the case of mountain artillery it is not desirable to have a single calibre gun and howitzer, since the Light Division will normally not be able to call on the 155 mm. howitzers of other formations to overcome a resistance which proves too great for its own guns. The reduction in calibre of the howitzer which would be necessitated by a combined design is, therefore, not desirable in this case.

(2) If the guns are to be horse-drawn, the weight behind the teams must be kept down to under 1¾ tons, and preferably to 1½ tons. This involves a slight sacrifice of ballistic qualities.

Hence, if mechanical traction is adopted—and this is the only means of obtaining a more powerful weapon for the cavalry—the requirements of cavalry would be met by :—

A gun practically identical with the 75 mm. on self-propelled mounting already described in Chapter 3.

A howitzer, calibre 105 mm., utilising the same mounting.

The gun would range to 13,000 m. (14,200 yards) and the howitzer to 10,000 m. (nearly 11,000 yards).

If horse-traction is adopted, St. Chamond have constructed a light 75 mm. mounting, weight under 1,500 kg. (3,300 lbs.), ranging to 9,000 m. (9,850 yards). It is proposed to utilise the mountain 105 mm. howitzer on a carriage with large wheels and a wide track, giving a range of 8 km. (8,750 yards).

Chapter 8.—Anti-Aircraft Artillery.

It is considered that in the initial stages of a campaign the hostile air activity will probably be so great that anti-aircraft artillery will be required to work with, or even in advance of, the heads of columns. Anti-aircraft equipments must therefore possess a high degree of mobility, which necessitates mechanical traction. When deciding on the calibre of the equipment several conflicting considerations must be reconciled. To obtain maximum effect a high muzzle velocity and a large calibre are desirable, but the latter is limited by the size of cartridge which can be dealt with if hand-loading is adopted. This factor limits the designer to a gun of about 80 mm. calibre with a muzzle velocity of 700–800 ms. (2,330–2,680 f.s.), since the complete round must not exceed 15 kg. (33 lbs.). If mechanical loading is adopted there is again a limiting factor, namely, the size of round which can be introduced between the gun and the ground. This consideration has led most designers to a calibre of 100 mm. or 105 mm., though in the U.S.A. a 120 mm. gun has been constructed.

Colonel Rimailho favours high explosive for anti-aircraft work, the fragmentation having been previously prepared. He considers that shrapnel has proved relatively a failure, and that mechanical fuzes will certainly be adopted to counteract irregular burning at high altitudes.

Discussing the organisation of the battery, he is in favour of a trailer mounting rather than a self-propelled mounting, in order to avoid crowding on one vehicle and to leave the gun members free to work. The whole of the data for anti-aircraft fire will be determined at the instrument post and transmitted to the gun. The former will give much more accurate results if the *personnel* working it are not hampered by noise and the movements of the gun detachment. All the essential data ought to be worked out and transmitted from this control post, the sole duty of the gun detachment being to load the gun and make the indicators on it follow the transmitter needles.

The first gun described is the 1924 pattern 80 mm. anti-aircraft gun designed by St. Chamond. Its principal characteristics are—

M.V. 680 m.s. (2 230 f.s.).
Semi-automatic breech (hand-loading).
Automatic fuze-setter.
Elevation (0–80°); traverse, 360°.
Weight in action, 2,800 kg. (6,155 lb.).

The gun is also intended to fire at small angles of elevation, and is provided with a central pivot rising automatically in a sleeve as the gun is elevated. The height of the trunnions and ground clearance is thus varied automatically as required.

It is not clear whether the second gun described is in existence yet, although it is called Model 1924.

This gun, the 100 mm. *puissant*, is intended principally for the defence of important localities, and is designed for electrical operation from a control post suitably situated. Loading would also be done electrically. Neither its M.V. nor the weight of its shell are given, but the former would presumably be in the neighbourhood of 900 m.s. (2,950 f.s.).

An additional advantage of having instrument posts on separate vehicles is that spare posts could be sent up to the field batteries armed with guns capable of high-angle fire, such as the 75 mm. G.C.T. The field gun of the future may have its fighting apparatus so arranged that it can make effective anti-aircraft practice when the required data are supplied to it by such a post. Colonel Rimailho's view that it will be necessary to employ field artillery against aircraft has already been noted. He also shows an improvisation of the 75 mm. gun as an anti-aircraft weapon with all-round traverse.

In the last part of the chapter the author justifies the system of control from a B.C. post at a distance and the method of laying the gun by electric motors controlled from this post, or rather from the vehicle or post containing the instruments for observation. This system is further described in an Appendix.

Chapter 9.—*Medium Artillery* (*H.T.*).

No very new ideas are contained in this chapter. The author considers that the experience of all nations has been conclusively in favour of a calibre in the neighbourhood of 155 mm. for a medium howitzer. He therefore adopts it, and lays down that its range must not be less than that of the field gun, *i.e.*, 10–12 km. (11,000–13,000 yards,) in order that a 155 mm. battery may not be neutralised by a hostile field battery without being able to reply. A medium howitzer ranging to 10–12 km. would weigh about 3½ tons, and Colonel Rimailho thinks that to haul such a weight in a single load would involve too heavy a sacrifice of mobility. He admits that guns of a corresponding weight were able successfully to follow the advances made in the last war; but these movements were small and slow, and it by no means follows that a 4-ton horse-drawn equipment would be sufficiently mobile for a rapidly-moving campaign. He therefore proposes to divide the howitzer into two loads, the gun and the carriage each weighing about 2 tons.

The experience of the late war has again shown that a 105 mm. is a very suitable calibre for a gun to carry out harassing fire at long range. This calibre provided the necessary ballistic qualities and at the same time keeps the weight of the gun down to 3½ tons, and that of the shell to a limit which allows of large quantities being available in the field.

At the same time, a shell of 105 mm. is not sufficiently powerful to deal successfully with enemy heavy batteries possessing some degree of cover; a heavier gun is required, but naturally it cannot have quite as long a range for the same weight. St. Chamond have, therefore, produced 3 guns :—

155 mm. howitzer—	
Weight of shell, 45 kg.	99 lb.
Range, 12 km	13,100 yards.
105 mm. gun—	
Weight of shell, 17 kg.	37½ lb.
Range, 18 km.	19,700 yards.
120 mm. gun—	
Weight of shell, 22 kg.	48½ lb.
Range, 16·5 km.	18,000 yards.

An interesting point about these equipments is that the mountings are all interchangeable, the gun alone being different. This accounts for slight variations in weight, but the heaviest equipment does not exceed 3¾ tons.

Chapter 10.—*Heavy Artillery* (*M.T.*).

Horse-drawn equipments must necessarily be limited in range, and if the principle be accepted that heavy guns and howitzers should equal or just outrange all hostile field artillery, a maximum range of 15 km. (16,400 yards) is imposed, a figure which involves recourse to mechanical traction.

Even in mobile warfare works are frequently encountered which are beyond the capacity of the 155 mm. howitzer to destroy. A calibre of 220 mm. (8 inches or just over) was adopted by all the belligerents, and Colonel Rimailho thinks it the best for general purposes, as the howitzer will have to perform a wide range of duties. He thus decides on the characteristics of two howitzers :—

155 mm. howitzer, self-propelled or tractor-drawn—

Weight of shell	45 kg. = 99 lb.
Maximum range of 15 km....	16,400 yards.
Minimum range of 5 km.	5,480 yards.

220 mm. howitzer, tractor-drawn—

Weight of shell	120 kg. = 264 lb.
Maximum range, 15 km.	16,400 yards.

As regards long-range guns, he considers that the ranges obtained by the horsed equipments will be considered insufficient in the future, and to meet the demand he proposes—

A 105 mm. gun ranging to 20 km.	21,900 yards.
A 155 mm. gun ranging to 25 km.	27,400 yards.

The 155 mm. howitzer and the 105 mm. gun should belong to the Army Corps. and the other weapons to the Army.

The system proposed for all four types is to move them in two separate loads, the gun and the platform. An all round traverse is arranged for by incorporating a double recoil system—

(1) Between the gun and the top carriage.
(2) Between the top carriage and the platform.

The effort transmitted to the mounting on firing is thus reduced below the minimum force required to move it in any direction. The carriage for the 155 mm. howitzer is identical with that for the 105 mm. gun, and the 155 mm. gun is also mounted on the same carriage as the 220 mm. howitzer. The gun may be either tractor-hauled in two loads, or self-propelled in one or two loads. In the case of the 155 mm. gun an ingenious solution is adopted. The mounting is on a wheel and track trailer, the caterpillar tracks alone being self-propelled, and the gun itself is hauled by a lorry tractor of ordinary type, as it never need leave the roads. To come into action the gun is placed on the mounting, which has previously been lowered on to its tracks, and divested of its wheels. The engine of the mounting is then started up, and the gun and mounting leave the road and proceed under the power of the mounting to the battery position.

Chapter 11.—*Caterpillar Artillery.*

Several caterpillar equipments of the petrol electric type already exist and were utilised during the war, notably the 220 mm. and the 280 mm. howitzers

and the 194 mm. long-range gun. Their main defect was that they were devoid of strategical mobility, though possessing a high degree of tactical mobility.

Colonel Rimailho thinks that the super-heavy howitzers which will be used on these mountings will only be called for on comparatively rare occasions when it is required to destroy fortifications of a permanent character, and that they should invariably be moved long distances by rail, and the mountings should be adapted for easy loading and detraining.

To meet these requirements he elects for a calibre of 305 mm. (12 inches) as a mean between 280 mm., as representing a minimum calibre for the destruction of permanent works, and the 400 mm. and 420 mm. calibres employed during the war.

This heavy howitzer could be supplemented by a 194 mm. gun, more powerful than the existing model, to be used for long range bombardments. St. Chamond are, in fact, at work on the designs of two caterpillar mountings guns.

1. A 305 mm. howitzer :—

Weight of shell	480 kg. (A.P.)	1,056 lb.
	400 kg.	880 lb.
Weight of bursting charge	30 kg. (A.P.) ...	66 lb.
	60 kg.	132 lb.

Range with 400 kg. shell, 15 km. = 16,400 yards.
Maximum elevation, 70°.

2. A 194 mm. gun (7·56 inch calibre) :—

Weight of shell, 125 kg. ... ... 275 lb.
Weight of bursting charge, 20 kg. ... ... 44 lb.
Range, 30 km. = 32,800 yards.
M.V., 800 m.s. = 2,630 f.s.
Maximum elevation, 40°.

Chapter 12.—Super-Heavy Guns on Railway Mountings.

Guns of this type are dependent for their development on the progress of naval design. They may be divided into—

Super-heavy guns.
Heavy guns.

The first category requires either a curved branch line or siding, or else a very elaborate platform, either of which take several days to construct and exclude the gun from mobile operations. The second category, however, can very advantageously be utilised in open warfare; they can come into action in a very short time on any siding, and they have an all-round, or at any rate a very wide, field of fire.

St. Chamond are now working on the mounting for a 240 mm. gun produced by the War Ministry. It will have a 360° field of fire.

Appendix of Specifications.

(1) Infantry tractor, 15 h.p.

Weight		3 tons.
Trailer (4 wheels)	tare	1·2 „
	load	1·6 „

Performance (speeds and maximum slopes climbed).[1]

Gear.	Tractor only.				With trailer.			
	On wheels.		On tracks.		On wheels.		On tracks.	
	Speed.	Slope.	Speed.	Slope.	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.		m.p.h.		m.p.h.	
Bottom ...	2½	1 in 7	½	1 in 2¾	2½	1 in 16	½	1 in 5½
Top (4th)...	15½	1 in 200	5½	1 in 180	3¾[1]	1 in 200	3	1 in 50

[1] 3rd gear.

(2) Light artillery tractor, 40 h.p.

Weight		4·8 tons
Weight of trailer	tare	2 „
	load	3½ „
Load carried by tractor		1·5 „
Maximum speed		15½ m.p.h.

(3) Light tank, armed with 45 mm. gun or 2 M.G.

Weight ... ... 8·6 tons.

(Can cross trench 4 ft. 11 in. wide.)

Armour	front	1 in.
	sides	·8 in.
	roof	·4 in.

Performance at 1,300 r.p.m.

Gear.	On wheels.		On track.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	2	1 in 6½	½	1 in 2¼
Top (4th)...	8¾	1 in 55	3	1 in 55

At 2,000 r.p.m. speeds are 13 m.p.h. (wheels) and 5 m.p.h. (tracks).

(4) Close support gun (75 mm. gun-howitzer).

Weight ... ... 7 tons.

(Can tow a trailer, weight 1·8 tons.)

Gear.	On wheels.		On track.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	2	1 in 7	¾	1 in 2¾
Top (4th)...	10	1 in 83	3¾	1 in 66

At 2,000 r.p.m. speeds become 15 and 6 m.p.h. on wheels and track respectively

(5) Corps artillery tractor, 60 h.p.

Weight	tare	7 tons.
	load	3 „
Trailer	tare	3½ „
	load	7 „

Performance with laden tractor, 1,000 r.p.m.

On wheels.

Gear.	Trailer loaded to 4½ tons.		Trailer loaded to 10 tons.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	2	1 in 7	2	1 in 10½
Top (4th)...	8¾	1 in 100	8¾	1 in 1000

On tracks.

Gear.	Trailer loaded to 4½ tons.		Trailer loaded to 10 tons.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	·6	1 in 2½	·6	1 in 3½
Top (4th)...	3	1 in 33	3	1 in 66

(6) 75 mm. field gun on self-propelled mounting.

Weight of gun and mounting	10 tons.
Trailer and 100 rounds	2½ „
Rounds carried on gun carriage	50.

Performance at 1,000 r.p.m.

Gear.	On wheels.		On tracks.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	2	1 in 6	·6	1 in 2½
Top (4th)...	8¾	1 in 50	3	1 in 33

(7) Heavy army type tractor, 150 h.p.

Weight	tare	11 tons.
	load	4 „
Trailer	tare	5 „
	load	15 „

Performance at 1,000 r.p.m.

(4 tons on tractor.)

Gear.	Without trailer.				Trailer, load 8 tons.				Trailer, load 15 tons.			
	On wheels.		On tracks.		On wheels.		On tracks.		On wheels.		On tracks.	
	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.
Bottom ...	2	1 in 4	¾	1 in 2	2	1 in 7	¾	1 in 2·6	2	1 in 10	¾	1 in 3½
Top (4th) ...	9½	1 in 33	3½	1 in 20	9½	1 in 83	3½	1 in 31	9½	1 in 500	3½	1 in 58

(8) 80 h.p. lorry tractor.

Weight, tare...		11 tons.
Load	on wheels	2½ „
	on tracks	5 „

Performance at 1,200 r.p.m.

Gear.	Tractor only, laden.				Hauling 8 ton trailer.				Hauling 15 ton trailer.			
	On wheels.		On tracks.		On wheels.		On tracks.		On wheels.		On tracks.	
	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.
Emergency ...	1¾	1 in 3½	¾	1 in 1½	1¾	1 in 6	¾	1 in 2½	1¾	1 in 9	¾	1 in 3¾
1st	2½	1 in 5	1	1 in 2½	2½	1 in 10	1	1 in 4½	2½	1 in 15	1	1 in 6½
4th	12	1 in 45	5	1 in 50	12	1 in 500	5	level	12	level	5	level

Note on the Agricultural Tractor in France.

The following note may be of interest in connection with the endeavours which are being made officially in France to further the production and utilisation of small agricultural tractors. A French artillery officer, who left the artillery shortly after the war to take up a position with a large French firm employed in the manufacture and sale of agricultural tractors, stated to the writer that he had come to the conclusion, after three years' experience in the distributing branch, that at present the small agricultural tractor was a failure in France. He gave as his reason the difficulty experienced by both farmer and manufacturer in keeping the machines in running order. The acreage to be tilled was sufficient to make "la motoculture" profitable, but the average farmer could not or would not pay the wages of a skilled mechanic, who would probably be idle when the tractor was not in use. In consequence, the large majority of machines were handled by the untutored farm labourer, who invariably put them out of action sooner or later by the neglect of one or the other of the ordinary running precautions. In France distances between villages are much greater than in England and few of the smaller villages possess a garage. These breakdowns, therefore, usually meant that an indignant demand for assistance was addressed to the makers, who, if they complied with all the requests, were obliged to send skilled mechanics all over the country at a considerable loss to themselves. A refusal, on the other hand, meant that the farmer reverted to the use of horses and was irretrievably lost as a customer.

CORRESPONDENCE.

[*Correspondence is invited on subjects which have been dealt with in the* JOURNAL, *or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, and publication of letters will be dependent on the space available in each number of the* JOURNAL.—ED.]

THE SITUATION IN THE PACIFIC.

TO THE EDITOR, R.U.S.I. JOURNAL.

SIR,—I have just read with interest Major Ferguson's lecture on the situation in the Pacific. The fact that he was good enough to express a favourable comment upon a book dealing with the Far East which I recently wrote is my excuse for offering the following observations :—

I think Major Ferguson lays undue stress on the Japanese emigration question. He emphasises "*The broad fact that an expanding population must go somewhere . . .*" The idea that Japan wants acres of land on which to dump Japanese was much in vogue some years ago and fitted in very conveniently with newspaper stunts which visualised a horde descending upon the Northern Territories of Australia. The rulers of Japan have not encouraged this idea for at least ten years because they know that the Japanese are not colonisers and will not even go into the Hokkaido. (*See* the astounding evidence of the Japanese Imperial Economic Council published in 1924.)

An expanding population does not necessarily have to go anywhere at all; it can (and in England and Japan actually does) give hostages to fortune by living on industry. But industry depends on raw materials. Given these, industry will absorb as much labour as chooses to enter its maw. It is the supply of raw material—especially in time of war—which causes the Japanese General Staff (which is the dominant voice in the Japanese Government) much earnest reflection. This point is stressed by Major Ferguson in his succeeding paragraphs, but it can hardly be overemphasised that Japan looks abroad for sources of supply and not for empty lands in which to force a home-loving peasantry.

In short, the increase of population in Japan is the foundation of Japan's chief problem, but I have seen no evidence which leads me to suppose that she considers a dispersion of her people as the solution of her troubles. The demand for racial equality is in a different category and has become a matter of national prestige and an extremely useful lever at International Conferences.

In conclusion, permit me to express my pleasure in the fact that the Institution has directed the attention of its members to a part of the world which I am profoundly convinced is destined to loom large in the history of our time.

Yours, etc.,

STEPHEN KING HALL.

Moor Place,
Yateley.

THE CHANNEL SQUADRON, 1872.

TO THE EDITOR, R.U.S.I. JOURNAL.

SIR,—It has been brought to my notice that there are two slips in my article on "The Channel Squadron, 1872," in the May number of the JOURNAL. On p. 195, para. 4, I said that the "Agincourt" and "Minotaur" were re-armed with

(*k*) guns, *i.e.*, 12-*inch*, whereas it should have been (*i*), *i.e.*, 12 *ton*, 9-inch. It is easy to make such a mistake, because guns were described indiscriminately by calibre or by weight at that period. On 8th May, 1873, these two ships were ordered to be re-armed with seventeen 9-inch—12 ton—guns before recommissioning.

Alluding to the "Northampton," on the same page, I inadvertently wrote that she "kept her 12-inch guns," whereas I should have said that she kept her original armament. As a matter of fact this was varied slightly, and in 1875 the official armaments book gives her five 9-inch 12-ton, and twenty 8-inch 9-ton. At some time after 1878 she was given two more 9-inch guns; Brassey, in 1882, gives her armament as seven 9-inch and twenty 8-inch, whichshe ap pears to have retained.

With reference to my remark on p. 200 that Captain Bourke did not serve again after the "Victoria" disaster, my attention has been drawn to the fact that he was appointed to the command of H.M.S. "Cordelia" in 1895, and flew his broad pennant as Commodore 2nd Class during the Newfoundland fishing season from May to October.

Yours, etc.,
L. G. CARR LAUGHTON.

OLD MILITARY CUSTOMS.

TO THE EDITOR, R.U.S.I. JOURNAL.

SIR,—I am glad to see in this month's copy of the R.U.S.I. JOURNAL that there is a letter from Col. Alban Wilson, asking for further information regarding "Old Military Customs." I was present at a drumming-out parade in the 30th Punjab Rifles about 1875 or '76. The "Rogues' March" was then played by some of our drummers and fifers, headed by an ancient but very wiry old Drum-Major, who was allowed to administer the final "kick-out" to the prisoner when the party reached the end of the line. It marched between the front and rear ranks of the Regiment. The tune of the "Rogues' March," as far as I can remember, was very similar to that which the fifers play at a military funeral—in three parts—one after each volley—the complete air following on the last volley. Cannot some old soldier of the British Service give us the origin of this tune and also that of the "Rogues' March"? One would like also to know the origin of the very similar tune played by the drums and fifes of British Infantry Regiments after the Réveille has sounded. The men, I think, have a peculiar name of their own for this lively air.

I was much interested in Colonel Alban-Wilson's account of the swearing-in of the recruits of his Gurkha Regiment on the old Colours. The recruits of the 30th P.I. were sworn in in much the same manner, and I hope the ceremony is still kept up. It was a class Compy. regt. The Sikhs were sworn in on the Sikh Bible (the Erunth), the Punjabi Mahomedans on the Korán, and the Dogras on Ganges water. The King's Colour was marched down the front of the line of recruits, who touched and salaamed to it as it passed. It was a very impressive ceremony.

Yours, etc.,
F. C. MAISEY, Lt.-Col.

Trotton Place, Petersfield.

FORMATION FLYING.

TO THE EDITOR, R.U.S.I. JOURNAL.

SIR,—The writer of the article "Some Tactical Aspects of Formation Flying" in the May issue of the JOURNAL seems to ignore the fact that the problems of formation flying have been given careful consideration by the Air Staff and that a

definite system of drill in the air has been formulated. This system was demonstrated at the R.A.F. display.

I admit that the system has never stood the test of action and I believe it would require extensive modification before it could be employed on active service. Nevertheless, I think that, since this interesting subject has been raised, the official views should be examined as comprehensively as possible.

The group of three machines, for example, used as the tactical unit and advocated by Major Stewart in his article, has actually been adopted by the Royal Air Force. The "mass" formation more or less corresponds to the "patrol of six" described in detail in the article. It is a V formation with the machines "stepped" upwards towards the rear. The "flight mass"—that is, three machines in this V formation—is adopted as the unit and all other formations are built up from it.

Major Stewart describes a formation of six, but a squadron would consist of *nine* machines and the formation of six would be rarely used unless, in war time, it were found necessary to increase the size of squadrons and to have six machines in such a flight and 18 in the squadron. (I am well aware that this was done in the last war.)

The idea of having the patrol sub-leader above a point midway between the last two machines, in order to strengthen the inherent defensive power of the formation, is ingenious, but, since it has not been tried on active service, it raises a point which could not be accepted without discussion. I do not wish to cavil but I do believe that the whole question of aerial formation tactics is capable of considerable development and that, by free discussion, it will be possible to improve upon the stereotyped system so far evolved.

Yours, etc.,
"FLIGHT LIEUTENANT."

TERRITORIAL ARMY TRAINING.

TO THE EDITOR, R.U.S.I. JOURNAL.

SIR,—Having some experience of the Territorial Army, I would ask if you would allow me to offer you a criticism of the interesting letter from the pen of Captain C. L. Tebbutt.

It is most difficult to explain and, therefore, for the outsider to understand, the limitations within which the Territorial Army works; these are a natural corollary to the conditions in which such a force exists and functions.

Captain Tebbutt proposes that a small book containing set schemes should be issued, with solutions to these schemes, the schemes to cover more or less all "normal" tactical situations in which a section or platoon commander would find himself on actual service. Experience has shown that, beyond teaching an officer to think quickly, such a book would soon be standardised, and prove of little value in the field, where a situation develops quickly and often requires a combination of the commonsense and intelligence of the individual combined with the tactical principles laid down in the various manuals.

The mistake we make, in my opinion, is that the instructors and the instructed are too often taught together; the aim should be to first get your junior officers, with their N.C.O.s, thoroughly grounded in the elementary principles of tactics, before letting them loose on their men. Too much, I am sure, is left to the after-mobilisation period, without making certain that the officer and his N.C.O.s are so trained as to be able to digest easily the intensive training that mobilisation

entails. Concentrate on your officers and N.C.O.s, and, when they are efficient, the efficiency of the commands will quickly follow. Divisional and Brigade training are, in my opinion, at the moment disastrous to the T.A., and all teaching and manœuvre should be confined to the platoon and section commander and his platoon or section. I believe the East Lancashire Division have in force a good scheme with this end in view: they offer, I am told, a platoon prize yearly to the platoon which executes most efficiently a scheme which is flung at them during their annual training. This is valuable, because the scheme is no set scheme. A situation is evolved from the country they are in, and as this often changes for each Brigade, thus the lesson learnt is valuable.

In conclusion, the solution does not lie, I feel sure, in burdening an officer with further literature, but in giving him some opportunity and some inducement to think for himself. Let the Army Council yearly offer three good prizes of £100, £50, £25, to the platoon which most successfully solves a scheme set during annual training, and you will find that greater interest will be taken by Junior Officers in their command, greater keenness to learn their job, and a far more lasting interest in the knowledge they have learnt from this method.

Yours, etc.,
AN EX-ADJUTANT.

NAVY NOTES.

ROYAL UNITED SERVICE INSTITUTION.

The following new Admiralty Order relating to the Institution has been issued:—

"At the request of the Council of the Royal United Service Institution the attention of all officers is drawn to the facilities which this Institution offers for professional study and discussion.

"Members are invited to prepare lectures or forward papers on professional subjects of a non-confidential nature to the Secretary, R.U.S.I., for perusal. Arrangements have been made for such papers as are accepted by the Council to be forwarded to the Admiralty without disclosing the names of the authors, in order that the permission of the Admiralty may be obtained before publication, as required by Article 14 of King's Regulations and Admiralty Instructions.

"The Institution contains an exceptionally fine professional library, reading and writing rooms, and an excellent museum. The Royal United Service Institution JOURNAL is sent free to members all over the world.

"The annual subscription is one guinea, the entrance fee being one guinea also.

"All officers can join without ballot, on intimating their wish to do so, and forwarding their entrance fee and subscription to the Secretary, Royal United Service Institution, Whitehall, London, S.W.1.

"Their Lordships desire it to be known that they wish to give every encouragement to officers to join the Institution and to take part in its essays, lectures and debates."

GREAT BRITAIN.

THE KING'S CRUISE.

H.M. the King, accompanied by the Queen and Princess Victoria, returned to London on 25th April from his cruise in the Mediterranean. Their Majesties travelled overland from Genoa. The "Victoria and Albert" returned to Portsmouth on 2nd May. On 28th April it was notified that the King had promoted Rear-Admiral Henry T. Buller, Commanding H.M. Yachts, to be a K.C.V.O., and had appointed Paymaster-Commander Grenville Miller, C.B.E., Accountant Officer of the Royal Yacht, and Lieutenant-Commander W. N. T. Beckett, D.S.C., Commanding the "Vendetta," to be members of the Fourth Class of the Royal Victorian Order.

NAVY COLOURS.

It was notified on 26th June that, owing to an alteration of design from the original form approved, there will be some further delay in the issue of the King's Colour, the grant of which to the Royal Navy was recorded in the JOURNAL last quarter.

Duke of York's Promotion.

In the midsummer naval promotions, Commander H.R.H. the Duke of York, K.G., K.T., G.C.V.O., was promoted to the rank of Captain, R.N. The Duke entered the Royal Navy as a Cadet at Osborne in January, 1909, and from 1913 to 1916 served afloat in H.M.S. "Collingwood," in which he took part in the Jutland battle. He was promoted to Lieutenant in June, 1916, and to Commander in December, 1920; and will be thirty years of age in December next.

The Admiralty Board.

First Lord's Visit.—The Right Hon. W. C. Bridgeman, First Lord, left London on 3rd April for a visit of inspection to the Fleet in the Mediterranean, accompanied by Lord Stanhope, Civil Lord, and Rear-Admiral F. C. Dreyer, C.B., C.B.E., Assistant Chief of the Naval Staff. The party arrived at Malta on 10th April in the sloop "Bryony," and on the 14th there was a naval review on the Marsa, at which 225 officers and 4,104 men paraded. A salute of 19 guns greeted their Lordships on arrival. Among the events of the day was a display by aeroplanes of the Fleet Air Arm.

During the Whitsuntide recess, the First Lord paid a round of visits to various works and establishments at home. On 30th May the site for the new Greenwich Hospital School at Holbrook was visited and examined. The competition between six selected architects for the design of the new School was won by Messrs. Buckland and Haywood, of Birmingham. On 30th May also, Mr. Bridgeman inspected the training establishment at Shotley. On Whit Monday, the First Lord visited Felixstowe, and made an examination of the naval boom defence; and on the following Saturday he inspected the naval cordite factory at Holton Heath.

The Flag List.

The late Sir Doveton Sturdee.—Following soon on the death of the Second Sea Lord, recorded in the last Journal, the Flag List of the Royal Navy suffered the loss, on 7th May, of Sir Doveton Sturdee, Bt., G.C.B., K.C.M.G., C.V.O., LL.D., who had held the rank of Admiral of the Fleet since 5th July, 1921, or shortly after hauling down his flag as Commander-in-Chief at the Nore. The outstanding event in his distinguished career was his defeat of the German Asiatic Squadron under Admiral von Spee off the Falklands on 8th December, 1914, for which he was raised to the baronetcy. He took a keen interest in various movements for the advancement of the welfare of his brother officers and men, and was on the Council of the Royal United Service Institution. When a young officer, he twice received the gold medal of the Institution for prize essays. As President of the Society for Nautical Research, he raised the fund to preserve and restore H.M.S. "Victory." He was buried on 11th May at Frimley with full naval honours.

Promotions.—Consequent on the death of Sir Doveton Sturdee, Admiral the Hon. Sir Somerset A. Gough-Calthorpe, G.C.B., G.C.M.G., C.V.O., who was the senior officer of his rank on the active list, was promoted to be Admiral of the Fleet, to date 8th May. In the vacancy caused by this promotion, the King approved of the appointment of Admiral Sir Montague E. Browning, G.C.B., G.C.M.G., M.V.O., to be First and Principal Naval Aide-de-Camp to His Majesty, which post had been held by Sir Somerset Gough-Calthorpe since 31st July, 1924, when Sir Charles Madden was promoted.

The following further promotions were also made, to date 8th May: Vice-Admiral Sir William E. Goodenough, K.C.B., M.V.O., Commander-in-Chief, the

Nore, to be Admiral; Rear-Admiral Hugh D. R. Watson, C.B., C.V.O., C.B.E., Rear-Admiral Commanding Third Battle Squadron, and Second-in-Command, Mediterranean, to be Vice-Admiral; and Captain H. E. Grace, A.D.C., late Commodore-in-Charge at Hong Kong, to be Rear-Admiral. A number of promotions on the retired list also took place from the same date.

APPOINTMENTS.—Following the selection of Vice-Admiral Brand to fill the vacancy on the Board of Admiralty as Second Sea Lord, Rear-Admiral Frank Larken, C.B., C.M.G., was, on 30th April, appointed Naval Secretary to the First Lord of the Admiralty, to date 29th April. One of Rear-Admiral Larken's first ceremonial duties was to represent the First Lord at the funeral of Admiral-of-the-Fleet Sir Doveton Sturdee on 11th May.

On 7th May the appointment was notified of Rear-Admiral Vernon H. S. Haggard, C.B., C.M.G., to be Rear-Admiral (S.), in succession to Rear-Admiral W. S. Nicholson, C.B., to date 1st September. Rear-Admiral Haggard was Captain (S.) of the Seventh (Coastal) Submarine Flotilla, working from Dundee and Rosyth, during the first part of the war. Another submarine appointment announced during the quarter was that of Rear-Admiral William R. Napier, C.M.G., D.S.O., to the "President," additional, for duty outside the Admiralty in connection with the Anti-Submarine Committee, to date 2nd March.

On 9th May, Vice-Admiral Sir Lewis Clinton-Baker, K.C.V.O., C.B., C.B.E., was nominated to be Admiral Commanding Reserves, in succession to Vice-Admiral Sir Hugh H. D. Tothill, K.C.B., K.C.M.G., K.C.V.O., to date 29th July; and Rear-Admiral Cecil M. Staveley, C.B., C.M.G., to be Rear-Admiral in the First Battle Squadron, Mediterranean Fleet, to date 7th September.

On 3rd June, it was announced that the King had approved the appointment of Rear-Admiral Walter M. Ellerton, C.B., to be Commander-in-Chief, East Indies Station, in succession to Vice-Admiral Herbert W. Richmond, C.B., to date 4th October, or two years from the latter's appointment. Rear-Admiral Ellerton was Rear-Admiral-in-Charge and Admiral-Superintendent at Gibraltar until April of this year.

Paymaster Rear-Admiral F. J. Krabbé, C.B., was stated on 14th May to be about to retire from the office of Deputy-Judge Advocate of the Fleet, which he had held since December, 1908. Paymaster-Captain H. W. Eldon Manisty, C.B., C.M.G., late Superintendent of the Secretaries' Course, and Organising Manager of Convoys in the latter part of the war, was notified to succeed him, to date 1st July.

PERSONNEL.

HISTORY PRIZES.—The following officers were awarded prizes on the result of the Naval History Essay Competition, open to Lieutenants under five years' seniority, for 1924: Geoffrey L. Bodoano, H.M.S. "Victory," £25; Trevylyan M. Napier, H.M.S. "Benbow," £25; John F. Stevens, H.M.S. "Iron Duke," £15; Douglas O. Doble, H.M.S. "Queen Elizabeth," £5; and Thomas J. N. Hilken, H.M.S. "Emperor of India," £5. Certificates of merit were awarded in each case.

HISTORY TEXT-BOOK.—Approval was given in June to substitute "The Naval Side of British History," by Professor G. A. R. Callender, for "The Royal Navy," by the late Mr. John Leyland, as the text-book in naval history for the higher educational test.

GOODENOUGH MEDAL AWARD.—A gold medal and a prize of £8 were awarded in May, under the Goodenough Memorial Prize Fund, to Lieutenant H. F. Lawson, R.N., of H.M.S. "Benbow," who obtained the highest place in the examination

in gunnery for the rank of Lieutenant at the Gunnery School, Portsmouth, during 1924. This year there occurs the fiftieth anniversary of the death of Commodore J. G. Goodenough, C.B., C.M.G., who was murdered by natives while in command of the Australian Station on 20th August, 1875.

MARINE OFFICERS' RELATIVE RANK.—By Admiralty Fleet Order dated 17th April, 1925, it was directed that "commissioned officers of the Royal Marines will rank, at all times, according to seniority, with officers of the Army of the same titles. The amendments to K.R. and A.I. involved by this decision will be published in due course."

ACCOUNTANT OFFICERS' PROMOTIONS.—In May, the Admiralty introduced revised regulations for the award of time, on the results of their examinations, to junior officers of the accountant branch. From and including the batch of Paymaster Cadets entered on 1st February, 1925, the order of seniority on advancement to Paymaster Midshipman will be determined solely by the order of merit in the passing out examination from the training ship, and not, as formerly, by a combination of these results with those obtained in the entry examination.

SEAMEN'S CUPS AND SAUCERS.—It was decided in April to substitute cups, pattern 49, and saucers, pattern 87, for earthenware basins in seamen's messes, the change to be effected gradually. A new medium-sized spoon, more suitable for use with the cup, will replace the present seaman's spoon. An enamelled 2-quart jug, to distribute tea from the urns, was added to the scale of mess utensils for seamen, one being allowed for each mess. In new ships, the design of mess-rack will be modified.

R.N. BENEVOLENT TRUST.—In place of Vice-Admiral the Hon. Sir Hubert Brand, who relinquished office on his appointment as Second Sea Lord, the Admiralty appointed Rear-Admiral Sir Henry T. Buller, K.C.V.O., C.B., to be President of the Royal Naval Benevolent Trust, as from 2nd May. A summary of the amounts received by the Trust from the allocation of one-fifth of the canteen profits and rent to it automatically, in accordance with the men's decision, for the six months up to 31st December, 1924, shows that £5,812 15*s.* 4*d.* was received in this way, and £2,431 16*s.* 9*d.* by direct payments from ships and establishments, making a grand total of £8,244 12*s.* 1*d.*

WARRANT OFFICERS' FUND.—The Admiralty have decided to allot £5,000 from the balance of the Naval Prize Fund for the relief of cases of distress among Naval and Marine warrant officers and their dependents; and through the agency of Captain Sir Lionel Wells, the Admiralty nominee on the governing body of the R.N. Benevolent Trust, their Lordships have taken steps to ascertain the wishes of the Warrant Officers as to how the sum shall be utilised.

SHORE SIGNAL SERVICE.—By Order in Council dated 26th May, 1925, published in the *London Gazette* ten days later, the designation of the remnant of the old Coastguard remaining under the Admiralty for duty at shore signal stations, the officers of which will in future be officers of H.M. Navy and the men of which will be entered in the Navy, was changed to "The Royal Naval Shore Signal Service," with the ranks of Senior Chief Officers, Chief Officers, Petty Officers, and Signalmen. This follows the creation a year previously of the Royal Naval Shore Wireless Service for the *personnel* engaged in manning the wireless and direction-finding stations formerly under the Coastguard.

Matériel.

New Construction Programme.—On July 23rd, the Prime Minister, Mr. Baldwin, announced the decision to which the Government had come in respect of the naval programme. They consider that the requirements of replacement will be met if two cruisers are laid down in October this year and two more in February, and by an annual construction of three cruisers thereafter during the normal life of the present Parliament. These cruisers will include some of the existing 10,000-tons type, and some smaller and less expensive, of about 8,000 tons. An annual construction of nine destroyers and six submarines, together with certain ancillary vessels, will also be required at the beginning of the financial year 1926–27, and likewise continued during the normal life of the present Parliament. For this year, the Admiralty will meet the additional expense, viz., £527,170, from savings on other heads and from under-spendings which are likely to accrue. The Admiralty will make every endeavour by substantial reductions in maintenance and other charges of the Navy to diminish the extra cost of the new construction. The Prime Minister also announced the appointment of a Committee of three persons, not connected with the Government, to examine maintenance costs and interior economy of the Navy, Army, and Air Service, and to inform the Government by interim reports the measures by which the burden upon the taxpayer can be actually reduced.

Ships Nearing Completion.—The following vessels have been nearing completion during the quarter: "Effingham," cruiser, at Portsmouth, to complete on 9th July, and ordered to relieve the "Chatham," flagship in the East Indies; "Emerald," cruiser, at Chatham, to complete in December, to relieve the "Colombo," East Indies; "Enterprise," cruiser, at Devonport, due for completion in March, 1926, to relieve the "Cairo," East Indies; "X.1," submarine, at Chatham, commissioned for trials; "L. 27," submarine, at Sheerness, to complete on 15th September, to join the Fifth Submarine Flotilla.

Cruiser Repairs.—Relieved in January last in the Second Cruier Squadron, Atlantic Fleet, by the "Cleopatra," since when she had been in reserve at Devonport, the "Canterbury" was in May ordered to Chatham for large repairs, for which £81,469 was voted in the Navy Estimates. She arrived at Chatham for the purpose on 3rd June. The cruiser "Champion," after extensive repairs at Portsmouth, resumed her former duty as gunnery firing and torpedo experimental ship there on 7th May. Cruisers paid off for repairs include the "Dartmouth" and "Yarmouth," at Portsmouth; the "Cambrian," at Chatham; and the "Comus," at Devonport, of which the last-named is due for completion on 31st July.

Organisation and Distribution.

Destroyer Depôt-Ships.—A division has been made of the duties of the destroyer depôt-ships in the Mediterranean, and the "Greenwich," Captain A. M. Lecky, D.S.O., is now attached to the First and Second Flotillas, and the "Sandhurst," Captain E. McC. W. Lawrie, D.S.O., to the Third and Fourth Flotillas.

Patrol Changes.—Patrol boats have been withdrawn from the Anti-Submarine Flotilla, Portland, which is now composed of the destroyers "Raider," "Redgauntlet," "Retriever" and "Rocket," which are tenders to the "Osprey," parent ship. "P. 38" has been renamed "Spey," and is in the Fishery Protection

Flotilla; "P.C. 73" is to be renamed "Dart," and to replace the "Colne" and "Ettrick" in this Flotilla.

OVERSEAS STATIONS.—The cruiser "Lowestoft," after repairs at Chatham, left there on 18th April for the Africa Station, where she relieved the "Dublin," which left Simonstown on 4th June for Sheerness. The "Vindictive," which commissioned at Chatham on 15th April after being reconditioned as a cruiser, is to relieve the "Concord" in China, but is temporarily attached to the Second Cruiser Squadron, Atlantic Fleet.

THE FLEET AIR ARM.

NAVAL OBSERVERS' COURSES.—Qualifying courses for naval observers will, in future, be held twice annually, and divided into two parts, of which the first part will be conducted at the Signal School and H.M.S. "Excellent," and the second part at the R.A.F. Base, Lee-on-Solent. The first course each year will last, Part I. from the middle of March to the end of May, and Part II. from the beginning of July to the end of October; and the second course will last, Part I. from the beginning of October to the middle of December, and Part II. from the beginning of January to the middle of May.

AIRCRAFT CARRIERS.—H.M.S. "Pegasus" returned to England in April from special service at Singapore, and was reduced to reserve at Devonport on 7th May. This leaves three aircraft-carriers in full commission, the "Argus," in the Atlantic Fleet; and the "Eagle" and "Hermes," in the Mediterranean Fleet. The latter was, in July, despatched at short notice to the China Station. The "Ark Royal" is in reserve at the Nore; and the "Furious" is paid off for alterations, which are expected to be completed in September. Of the two large cruisers under conversion as aircraft-carriers, the "Courageous," at Devonport, will be finished about October, 1927; no date is yet given for the "Glorious," at Rosyth.

CONTROL OF NAVY AIRCRAFT.—The Prime Minister, replying to questions in Parliament in June, stated that he was satisfied as to the effect in practice of the recommendations of the sub-committee of the Committee of Imperial Defence, published in 1923, on the relations between the Navy and the Air Force. Replying to other questions, the First Lord of the Admiralty stated that the three strongest Naval Powers, other than our own, give to their Admiralties complete control over the provision, training and development of the air arms of their Fleets and air defences, and as regards what steps the Admiralty are taking in respect of the present state of affairs in the British Navy, the Board are carefully watching the development of the system which was instituted by H.M. Government in 1923.

(*See also Air Notes, p.* 588.)

DOMINION NAVIES.

AUSTRALIAN SURVEYING SHIP.—The sloop "Silvio" was commissioned at Pembroke on 20th June for duty in the Royal Australian Navy as a surveying ship, and was renamed the "Moresby." Admiral John Moresby, whose name is given to this ship, died in 1922 at the age of 92, and is best known for his discoveries in the Pacific when commanding H.M.S. "Basilisk" in the early 'seventies. He discovered the finest harbour on the southern coast of New Guinea, now called Port Moresby, and also revealed the existence of a new and shorter route between Australia and China. In the war, there was a destroyer named the "Moresby," which fought at Jutland.

VISIT TO JAPAN.—A visit to Japan, the first by a warship of the Royal Australian Navy, was made during May by the "Brisbane," Captain J. F. C. Patterson, O.B.E. The ship left Hong Kong, where she is attached to the China Squadron until about August, on 6th May, and was at Yokohama from 13th to 21st May. A special welcome was accorded her, and a presentation was made of a model of the Japanese cruiser "Ibuki," which convoyed Australian troops to Europe during the war. Captain Patterson and his officers were officially entertained by Admiral Takarabe, the Minister of Marine.

INTERCHANGES OF SHIPS.—After the interchange of ships between the Royal and the Royal Australian Navies has concluded—the "Brisbane" being with the Imperial forces in China and the "Concord," Captain A. R. W. Woods, D.S.O., having been lent to Australia from the Mediterranean—a further exchange has been approved. About 15th November, the "Brisbane" will again leave Commonwealth waters for six months' duty in the Mediterranean, and her place will be taken by the "Delhi," Captain K. E. L. Creighton, M.V.O., which will be detached for the purpose from the First Cruiser Squadron, Mediterranean Fleet.

NEW ZEALAND FLAGSHIP.—A full programme of cruising has been carried out this summer by the "Dunedin," flagship of the New Zealand Division of the Royal Navy. From 16th to 27th April the vessel visited her name port, and she reached Auckland on 6th May after visits to Oban, Omaru, Timaru, Akaroa, and other places in New Zealand. She left again on 17th June for a cruise among the Pacific islands, which was to take her to Suva in the first week of July. The sloops "Laburnum" and "Veronica" have also been cruising in the Pacific during recent months.

CANADIAN D.N.I.—Commander H. B. Taylor, R.N., has been lent to the Royal Canadian Navy for two years as from 7th April, 1925, for duty as Director of Naval Intelligence at Ottawa, a post formerly held by Commander C. B. Hastings, R.N. Commander Taylor, promoted in 1916, after being first and Torpedo Lieutenant-Commander of the "Queen Elizabeth," was in 1919 selected for duty on the staff of the R.N. Staff College.

SOUTH AFRICAN NAVAL ESTABLISHMENT.—In reply to a question in Parliament on 30th April, the Parliamentary Secretary to the Admiralty stated that the cost of the Naval Establishment in South Africa to H.M. Government is approximately £133,100, and of the ships, £490,200; making a total of £623,300.

TRANSVAAL NAVAL CADETS.—Noticeable in a procession during the Prince of Wales's visit to Pretoria in June were the Transvaal Naval Cadets. Most of these, said one descriptive writer, had never seen the sea, owing to their being so many miles from the South African coastline, but their training ground was the town reservoir, where they learn the rudiments of seamanship.

R.N.V.R. IN SINGAPORE.—The formation of a Royal Naval Volunteer Reserve at Singapore and other places in Malaya is under consideration, it was officially stated in June. The possibility of similar schemes being adopted in other Colonies is also receiving consideration.

NAVAL OCCURRENCES.

THE ATLANTIC FLEET.—After giving Spring leave to its crews, the Atlantic Fleet left its home ports on 8th May for Invergordon and Rosyth, from which ports a month's practices were carried out. The squadrons and flotillas then reassembled at Rosyth and carried out firings between 15th and 20th June.

During the next four weeks they made independent cruises to ports on the west coast of Scotland and England, arriving in Torbay by 13th July and Portland by 20th July. The places visited included Lossiemouth, Oban, Lamlash, Ballachulish, the Clyde, Liverpool, Douglas, Llandudno, Aberystwyth, and Bangor.

BALTIC CRUISE.—Rear-Admiral W. A. Howard Kelly was deputed to take the Second Cruiser Squadron and Fifth Destroyer Flotilla for a cruise to the Baltic, and accordingly left Rosyth on 6th June for Copenhagen, Helsingfors and Reval. Four cruisers were, between 24th June and 2nd July, to visit Riga; the "Wallace" and the 9th Destroyer Division, Abo; and the "Carysfort" and the 10th Destroyer Division, Memel; the forces rejoining to visit Oslo from 4th to 10th July.

ZEEBRUGGE MEMORIAL.—On the anniversary of St. George's Day, 1918, when the British naval forces made their famous raids on Zeebrugge and Ostend, the King of the Belgians unveiled the handsome memorial which has been erected on the Mole at the former place to commemorate this achievement. Among those present were Admiral Sir Roger Keyes, and a party of over 250 officers and ratings who took part in the operations under his command. These survivors made the passage from Dover in the cruiser "Caledon."

R.N. DIVISION MEMORIAL.—On 25th April (Anzac Day) there was unveiled on the Horse Guards Parade, near to the Admiralty Building, the memorial fountain designed by Sir Edwin Lutyens to the 582 officers and 10,925 other ranks of the Royal Naval Division who fell in the War, the ceremony being performed by Major-General Sir Archibald Paris, General Officer Commanding the Division at the Defence of Antwerp, in Gallipoli, and in France. An address was delivered by Mr. Churchill, who was First Lord of the Admiralty when the Division was organised and began its war services.

DANUBE CRUISE.—The gunboat "Glow-worm," Captain D. B. Le Mottee, began her summer cruise on 16th May, when she left Galatz for a passage up the Danube, where Captain Le Mottee is Senior Naval Officer, as far as Budapest and Vienna, spending a week at each city. Stops were also made at Turnu Severin, Belgrade, Bratislava, Komarno and Novisad.

SHANGHAI RIOTS.—Towards the end of May serious unrest in Shanghai required the intervention of naval forces to assist in restoring order. On 3rd June, the "Diomede" arrived, and next day the "Carlisle," followed by the "Despatch." American and Japanese war vessels were also sent. Fighting was also reported from Canton; and, owing to riots, the British gunboat "Woodlark" and American destroyer "Paul Jones" were sent to Chin-kiang.

BRITISH WARSHIPS IN CHINA.—The Admiralty announced the list of British and foreign warships in Chinese waters on 21st June, which showed that the respective totals were 45 and 31. The British forces include 6 cruisers, 4 sloops, 2 minesweepers, 15 gunboats, 3 depôt-ships, 12 submarines, 1 surveying ship, and 2 motor launches.

FLOATING DOCK FOR MALTA.—On 1st June, the ex-German floating dock No. 8 left Sheerness in tow of six tugs for Malta, where it will be available for the docking of the largest ships. The structure arrived safely on 27th June, after a four weeks' tow. The passage across the Bay was attended by bad weather, and occasioned much anxiety.

MEDITERRANEAN CRUISES.—The summer cruise of the Mediterranean Fleet was arranged to take place between 2nd June and 25th July, to French, Italian

and Spanish ports. The Fleet first went to Palma, where on 8th June Admira Sir Osmond Brock took leave on relinquishing the command, and proceeded to Marseilles, where the flag of Admiral Sir Roger Keyes was hoisted in his place, the flagship "Queen Elizabeth" afterwards going to Toulon and Spezia. From 24th June to 1st July the squadrons and flotillas reassembled off Pollenza, and then dispersed for independent visits to foreign ports, including Valencia, Rapallo, Tarragona, Genoa, San Remo, Villefranche, Barcelona and Cartagena.

VISIT TO CANADA.—Vice-Admiral Sir James Fergusson left Bermuda on 6th June with the Eighth Cruiser Squadron to visit Canadian ports, in accordance with the usual custom since the war. The "Calcutta," "Constance" and "Curlew" proceeded to Halifax, while the "Capetown" went through the Canal to visit ports on the Pacific side. The Squadron is not expected back at Bermuda in force until mid-October.

THE GRAND FLEET REUNION.

An historic reunion took place on 30th June, when the Flag Officers and Captains who served in those ranks in the Grand Fleet from the 4th of August, 1914, to the 11th of November, 1918, entertained Admirals-of-the-Fleet Earl Jellicoe and Earl Beatty and their personal Staffs to dinner at the Grand Hotel, Northumberland Avenue.

Admiral-of-the-Fleet Sir Charles Madden presided over the company, which also included the following officers:—

Admirals-of-the-Fleet Sir Cecil Burney and the Hon. Sir S. Arthur Gough-Calthorpe.

Admirals Sir Montague Browning, Sir John de Robeck, Sir Alexander Duff, Sir William Pakenham, Sir Arthur Leveson, Sir Sydney Fremantle, Sir Osmond Brock, Sir Richard Phillimore, Sir Thomas Jerram, Sir Edward Bradford, Sir William Lowther-Grant, Sir Reginald Tupper, Sir Arthur Moore, Sir Herbert Heath, Sir William Goodenough, A. W. Waymouth, S. Nicholson, Sir Robert Prendergast, and E. H. Smith.

Vice-Admirals Sir William Nicholson, Sir George Hope, Sir Hugh Tothill, the Hon. Sir Victor Stanley, Sir Lewis Clinton-Baker, Sir Rudolf Bentinck, Sir Percy Grant, Sir Frederick Field, the Hon. Sir Hubert Brand, the Hon. Sir Edward Fitzherbert, C. S. Hickley, Sir Arthur Henniker-Hughan, Sir Henry Pelly, E. W. Philpotts, E. Underhill, Sir Henry Bruce, Sir John Green, V. H. G. Bernard, E. F. Bruen, B. Barttelot, G. H. Borrett, and Sir W. R. Hall.

Rear-Admirals C. Maclachlan, Sir Alfred Chatfield, A. A. M. Duff, H. Sinclair, W. M. Ellerton, Sir Henry Buller, P. M. R. Royds, B. S. Thesiger, R. N. Bax, V. H. S. Haggard, A. V. Campbell, W. H. D. Boyle, A. G. Hotham, F. C. Dreyer, J. E. T. Harper, H. W. Bowring, D. T. Norris, R. R. C. Backhouse, H. W. Grant, A. Craig-Waller, E. L. Booty, S. R. Drury-Lowe, V. B. Molteno, E. Reeves, F. Martin-Leake, G. P. Ross, W. Bowden-Smith, C. D. Carpendale, C. B. Miller, T. P. H. Beamish, H. E. Grace, and J. R. P. Hawksley.

Captains the Hon. Matthew Best, H. C. R. Brocklebank, A. Bromley, P. G. Brown, F. A. W. Buller, A. G. Craufurd, B. Curtis, F. W. Dean, R. E. Plunkett-Drax, M. Dunbar-Nasmith, C. M. Forbes, the Hon. A. L. O. Forbes-Sempill, E. J. Fullerton, H. H. Holland, T. N. James, O. Leggett, the Hon. W. S. Leveson-Gower, C. J. C. Little, B. M. Money, W. D. Paton, L. G. Preston, C. Royds, the Hon. A. C. Strutt, W. Tomkinson, H. Tweedie, F. H. Walter, H. L. Watts-Jones, and G. B. W. Young.

Guests (Personal Staff).—Paymaster Rear-Admiral Sir Hamnet Share, Captain H. Fitzherbert, Paymaster Captain F. T. Spickernell, and Commander E. R. B. Kemble.

To Admiral Rodman and the Captains of the Sixth Battle Squadron, United States Navy, the following message was despatched:—

"Flag Officers, Captains of Grand Fleet are dining together, and send greetings to you and Captains of Sixth Battle Squadron."

FOREIGN NAVIES.

CHILE.

MISSION IN ENGLAND.—Admiral Carlos A. Ward has arrived in England to take up his duties as Head of the Chilean Naval Mission in this country.

FINLAND.

NAVAL DEFENCE PROGRAMME.—A programme has been put before the Finnish Diet for the construction of two gunboats, four submarines, one training-ship, and four oil-driven torpedo-boats, at an estimated cost of 375 million marks (about two million pounds sterling), to be spread over five years. The War Minister has declared it impossible to protect the coasts of Finland without a Navy.

FRANCE.

NEW WARSHIP CREDITS. — On 24th April the Chamber passed a Bill authorising a special credit of 35 million francs as a first instalment of the cost of one cruiser, three destroyers, four torpedo-boats, seven submarines, two submarine minelayers, one surface minelayer, and one aircraft-carrier, the keels of which vessels are to be laid down during 1925.

VISITS TO MALTA.—On 23rd April, Admiral Dumesnil, Commander-in-Chief of the French Mediterranean Fleet, which was engaged in manœuvres, proceeded to Malta on board the destroyer "Amiral Senes" to return the visit to the French base of the British Commander-in-Chief, Admiral Sir Osmond Brock. From 20th to 24th May the French cruisers "Metz" and "Strasbourg," formerly the German vessels "Königsberg" and "Regensburg," visited Malta.

GERMANY.

NEW SURVEYING SHIP.—The German surveying ship "Meteor" was announced to visit Capetown from 2nd to 10th July, Port Stanley from 6th to 10th September, Capetown again from 9th to 19th October, and South Georgia from 23rd to 28th December. She is a new vessel, of 1,150 tons and 1,550 horse-power, with a speed of 14 knots.

THE ROTOR-SHIP.—It was reported at the end of April that the Weser Shipbuilding Company had received a contract to build a rotor cargo ship of 3,000 tons, in which it was understood that both the naval authorities and shipping companies were interested with a view to gaining fuller experience. This is the new form of wind-driven vessel invented by Herr Flettner, in which propulsion is secured by the action of the wind on vertical rotating cylinders, 60 ft. high and 9 ft. in diameter.

GREECE.

NEW BRITISH MISSION.—On 15th April it was announced that the Admiralty had agreed to loan a permanent Naval Mission to Greece, and Rear-Admiral

Cyril S. Townsend, C.B., was appointed in charge. Commander F. Q. Champness, Lieutenant-Commanders A. G. Talbot and E. C. Tufnell, and Paymaster Lieutenant-Commander H. P. Hunter, D.S.C., were appointed to his staff. Captain H. G. Thursfield and Paymaster-Commander F. P. Bayly-Jones, of the staff of the Advisory Mission under Vice-Admiral Webb, were to remain at Athens until the arrival of the new Mission.

ITALY.

FLOTILLA'S BRITISH VISIT.—Under the command of Captain Domenico Cavagnari, the new Italian flotilla leaders "Pantera," "Leone" and "Tigre" arrived at Portsmouth on 1st May and remained until the 9th. In addition to the usual official calls, the naval and civic authorities co-operated to welcome the visiting ships. The Italian Commanding Officer laid a wreath on the Portsmouth War Memorial, and among other events in the programme were a visit to the "Victory," a tour of the Dockyard, a dinner and dance at Admiralty House, reception for the officers at the Italian Embassy in London, and a concert for the petty officers and men at the Royal Naval Barracks. The Mayor of Portsmouth also gave a banquet to the officers and men.

NEW DESTROYER.—Laid down in 1922, the first destroyer to be built by Messrs. Pattison, of Naples, since the war was launched on 25th April and named the "Quintino Sella," in honour of the famous Finance Minister in the early days of Italian unity. Admiral Thaon di Revel and a distinguished company witnessed the launch. The new vessel is one of four, of 1,024 tons, 28,000 horse-power, 36 knots, geared turbines, using oil fuel only, three 4·7-in. guns, four torpedo tubes, and a complement of 120.

JAPAN.

BUILDING PROGRAMME.—With reference to certain erroneous reports that Japan had embarked on a new and extended naval programme, a message from Tokio, dated 17th April, stated that the construction programme was as originally laid down according to the Washington Agreement. Only six first-class cruisers had actually been laid down, but two more, of 10,000 tons, were under contemplation. The ships now building include two cruisers of 10,000 tons, the "Nachi" and "Myoko" (laid down on 25th October and 26th November last); four cruisers of 7,100 tons (the "Kako" class); and three of 5,570 tons (the last of the "Kinu" type); two aircraft-carriers (of which one, the "Akagi," of 26,900 tons, was launched on 21st May); and ten destroyers of 1,400 tons. A Press telegram, published on 18th May, said that Japan had completed her largest submarine, No. I. 53, of 1,700 tons displacement, "capable of cruising across the Pacific and returning."

PERSONNEL EFFICIENCY.—In a review of the present condition of the Japanese Navy, *The Times* Correspondent at Tokio remarks that the Japanese often sacrifice a little in the weight of a secondary broadside solely on account of the physique of the sailor, for it has been found that when it comes to handling shells, a 5·5-in., for example, is to the Japanese sailor the equivalent of a 6-in. shell to the British. There can be no question, adds this writer, but that the Japanese officers and ratings are efficient, but they are probably below our own standard of naval efficiency. Their inferior physique makes it impossible for them to carry out "loader drill," for example, with the same dash and snap that may be seen any day in a British ship of war. "And behind this there are the national characteristics of a reluctance to command and a disinclination to find fault with subordinates, in themselves qualities hardly likely to inspire

discipline or to stimulate swift and concerted action in a ship's company. But the Japanese sailor's willingness to work and his intense loyalty make up in some degree for slackness in other directions."

NETHERLANDS.

NEW DESTROYERS.—The Dutch Government ordered in May two additional torpedo-boat destroyers to be built in Holland to the designs, and under the supervision, of Messrs. Yarrow & Co., of Scotstoun, Glasgow. Two such vessels were ordered last year. All four will have the latest type of Yarrow boiler.

SWEDEN.

VISITS TO ENGLAND.—The training cruiser "Fylgia" visited Falmouth from 27th to 29th May. Three small craft in the training service were also announced to visit English ports during the summer. The "Af Chapman," built at Whitehaven in 1888, was to go to Plymouth from 7th to 11th August; and the "Najaden" and "Jarramas" were to visit Harwich from 23rd to 27th July, and Cowes from 2nd to 6th August.

NEW C.M.Bs.—On 5th June the first of two 55-ft. coastal motor torpedo-boats of 37 knots guaranteed speed was launched for the Swedish Navy by Messrs. Thornycroft at Hampton-on-Thames. Mrs. de Bahr, wife of the Swedish Naval Attaché in London, performed the launching ceremony. The armament comprises two 450-mm. torpedoes, two pairs of machine guns, depth charges, and smoke floats.

TURKEY.

ORDER FOR SUBMARINES.—It was reported in May that the Turks were desirous of obtaining the services of an officer of the British Navy to reorganise their fleet, following the adoption of this course by the Greeks. On 20th May it was further announced that an order had been placed with the Fijenoord Company, of Rotterdam, for two submarines; and with the Flender Brückenbau Company, of Lübeck, for a 26,000-ton floating dock. The latter will be large enough to accommodate the "Yawuz Selim," formerly the German battle-cruiser "Goeben," which may be reconditioned. Ihsan Bey, Commisar of Marine, was reported to have informed the Constantinople Press that this vessel was a naval unit of great potential value, and the Government were already negotiating with foreign firms with a view to her refit and repair.

UNITED STATES.

MIDSHIPMEN AND AERONAUTICS.—From 1st June, by an order of the Secretary of the Navy, all midshipmen studying at the U.S. Naval Academy at Annapolis will receive instruction in practical and theoretic aviation, so that on graduation they may qualify as pilots or observers, according to physical fitness. The title of the Engineering Course has been altered to Engineering and Aeronautics, and that of Seamanship to Seamanship and Flight Tactics.

PRACTICE CRUISE.—The itinerary of the Naval Academy Practice Squadron, composed this year of the battleships "New York," "Arkansas" and "Utah," showed a change on that of recent years by not including any visits to foreign ports or dockyards. From 30th May to 30th August the Squadron was to cruise to Panama, San Pedro, San Francisco, Astoria, and Seattle, spending 52 days at sea and 39 in port. It was thus in the neighbourhood of the Pacific naval bases during the absence of the Battle Fleet in Australia.

THE AUSTRALIAN VISIT.—The programme of the visit to Australia showed that the Fleet Flagship, three battleships, and two destroyer squadrons (one light cruiser and 28 destroyers) were to visit Melbourne from 23rd July to 6th August, and to arrive at Wellington on 11th August. Four light cruisers were to be at Melbourne from 23rd July to 3rd August, then to visit Hobart from 5th to 7th August, and to rejoin the other ships at Wellington. The flagship of the Battle Fleet, and two battleship divisions, were to visit Sydney from 23rd July to 6th August, and Auckland from 11th to 25th August. The divisions for Melbourne and Sydney, under Admiral R. E. Coontz, in the *Seattle*, and Admiral S. S. Robison, in the *California*, arrived on July 23rd and were warmly welcomed. On the return voyage the Fleet was to visit Samoa.

NAVAL AIR SERVICE.

AIRCRAFT-CARRIER LAUNCHED.—The new aircraft-carrier "Saratoga," begun as a battle-cruiser but scrapped as such under the Washington Treaty, was launched at New York on 7th April by Mrs. Wilbur, wife of the Secretary of the Navy. The "Saratoga," which is 850 ft. on the water line and 890 ft. overall, will carry 72 aeroplanes, of which 31 will be bombing machines. To propel her at her designed speed of 33·9 knots, 180,000 horse-power must be applied to the four shafts; steam being generated in 16 boilers, which at full power burn 600 barrels of oil fuel per hour, or 2,000 tons per day. In an address at the launch, Mr. Wilbur declared that "the mortal mind has conceived and put into execution nothing which embodies more of the accumulation of human knowledge than the vessel being launched to-day."

(*See also Airship Notes, p.* 600.)

ARMY NOTES.

HOME.

Promotions and Appointments.

A.D.C. General to The King.—His Majesty the King has been graciously pleased to approve of the appointment of General Sir Alexander Godley, K.C.B., K.C.M.G., Colonel, the Royal Ulster Rifles, to be Aide-de-Camp General to the King, with effect from the 22nd May, 1925, in succession to General Sir Thomas Morland, K.C.B., K.C.M.G., D.S.O., Colonel, the Suffolk Regiment, Colonel Commandant, the King's Royal Rifle Corps, deceased.

Generals.—The King has approved of the following promotions:—

Lieut.-General Sir E. S. Bulfin, K.C.B., C.V.O., to be General in succession to General Sir J. A. L. Haldane, G.C.M.G., K.C.B., D.S.O., retired.

Lieut.-General Sir R. C. B. Haking, G.B.E., K.C.B., K.C.M.G., to be General in succession to General Sir T. L. N. Morland, K.C.B., K.C.M.G., D.S.O., Aide-de-Camp, deceased.

Major-Generals.—The following Colonels to be Major-Generals: N. J. G. Cameron, C.B., C.M.G., A.D.C.; B. R. Kirwan, C.B., C.M.G.; G. F. Davies, C.B., C.M.G., C.B.E.; W. K. Tarver, C.B., C.M.G.; A. B. E. Cator, C.B., D.S.O.; E. S. Girdwood, C.B., C.M.G.

Chief of the Imperial General Staff.—It is officially announced that General Sir George Milne, C.M.G., K.C.B., D.S.O., has been nominated to succeed General the Earl of Cavan, K.P., G.C.M.G., G.C.V.O., K.C.B., on the latter's vacating the post of Chief of the Imperial General Staff in February, 1926.

Commands.—Sir George Milne will be succeeded in his office of G.O.C.-in-C., Eastern Command, by Lieutenant-General Sir W. P. Braithwaite, K.C.B., now serving as G.O.C.-in-C., Scottish Command. This latter officer will in turn be succeeded by Lieutenant-General Sir W. E. Peyton, K.C.B., K.C.V.O., D.S.O., the present Military Secretary at the War Office, who will be followed in that appointment by Lieutenant-General Sir D. G. M. Campbell, K.C.B.

Deaths.

We regret to have to chronicle the death of Field-Marshal the Earl of Ypres, who succumbed to the after-effects of an internal operation, at Deal Castle, on 22nd May. The Earl of Ypres' career is so familiar as to need no further mention, save that, as Commander of the original B.E.F. in August, 1914, his name will be inseparable from the great retreat from Mons and the First Battle of Ypres. The whole of his service was fully epitomised in *The Times* for 23rd May.

The death also occurred abroad, on 21st May, of General Sir Thomas Morland, who will best be remembered as General Officer Commanding-in-Chief, first at Cologne and subsequently at Aldershot. Ill-health eventually ruined a career that had begun brilliantly in West Africa. General Morland will be most clearly remembered by those who served on his Staff for his charming manner and devotion to duty.

MISCELLANEOUS.

WAZIRISTAN OPERATIONS: GRANT OF MEDAL.—The "India General Service Medal, 1908," in silver, with Clasp "Waziristan, 1921–24," will be granted to the military forces which took part in the operations in Waziristan between 21st December, 1921, and 31st March, 1924.

RESIGNATION OF ARMY OFFICERS.—It is announced that no military authority other than the Army Council may call upon an officer to retire or resign his commission, or exert any pressure on him to do so. A similar provision has been made in respect of officers of the Territorial Army.

VOCATIONAL TRAINING IN THE ARMY.—Thirteen months have now elapsed since the Vocational Training Centres were established on a permanent basis at Catterick and Hounslow, with the object of preparing soldiers during the last six months of their Colour Service for their return to civil life and employment. Under present arrangements provision is made for approximately 1,000 men passing through the courses each year; and of those who have already gone to Catterick or Hounslow, more than 80 per cent. have obtained employment immediately on their discharge from the Army—50 per cent. in the occupations for which they had been specially trained at the Centres, and 30 per cent. in other trades or callings for which their training had also given them a certain degree of fitness.

Vocational training courses of shorter duration than those at Hounslow and Catterick are also given at Aldershot and the other Commands, with results, so far as employment is concerned, which have been practically analogous to those obtained at the two Centres.

GARRISON TAILORS' AND SHOEMAKERS' SHOPS TO BE ABOLISHED.—It has been decided, in the light of experience, to abolish as soon as possible the garrison tailors' and shoemakers' shops inaugurated in 1922. But regiments of Household Cavalry, battalions of Foot Guards, the Guards Depôt, Highland (Kilted) Regiments, and the West India Regiment, will retain their tailors' shops. All other units at home and abroad, except the Rhine Army, will make local arrangements for tailoring and shoemaking repairs. These arrangements may consist of the employment of civilian tailors and shoemakers in the case of depôts and other stationary units, or of contracts with local tradesmen in other cases.

DISBANDMENT OF ROYAL TANK CORPS WORKSHOP TRAINING BATTALION.—In consequence of the decision to transfer from the Royal Tank Corps to the Royal Army Ordnance Corps the responsibility for second line repair of units of the former Corps, the Workshop Training Battalion, Royal Tank Corps, has been disbanded.

REGIMENTAL ALLIANCES.—The King has approved of the following alliances:—

The Royal Canadian Dragoons, Canadian Militia, to the 1st The Royal Dragoons.

The 5th British Columbia Light Horse, Canadian Militia, to the 4th Queen's Own Hussars.

The Calgary Highlanders, Canadian Militia, to The Argyll and Sutherland Highlanders (Princess Louise's).

Territorial Army.

Change of Titles.—The County of London, City of London, City of Edinburgh and City of Glasgow T.A. Associations will in future be known, respectively, as:—

The Territorial Army and Air Force Association of the County of London;
The Territorial Army and Air Force Association of the County of the City of London;
The Territorial Army and Air Force Association of the County of the City of Edinburgh; and
The Territorial Army and Air Force Association of the County of the City of Glasgow.

These changes of designation are due to the fact that R.A.F. units are now included in the forces administered by the Associations named.

Territorials and Private Business Interests.—An officer or man of the Territorial Army whilst employed on full-time military duty, who may have occasion, in the course of his military duty, to come into contact with any matter concerning a business organisation in which he has an interest, must disclose that interest to his superior officer and ask that some other person may deal with the case. It is also stated that no officer or man should be permitted to deal with such a matter without the sanction of the Army Council.

Upkeep of Uniform.—For the purposes of income tax assessment, a deduction of £7 10*s.* from the Army Pay of Officers of the Territorial Army will be allowed in respect of the expenses incurred in the upkeep of uniform.

The Territorial Decoration.—The King has been pleased to ordain that the award of the Territorial Decoration, while not conferring any individual precedence, shall entitle the recipient to the addition after his name of the letters "T.D.," and similarly in the case of the award of the Volunteer Officers' Decoration and the Colonial Auxiliary Forces Officers' Decoration, to the addition of the letters "V.D."

Officers Training Corps.

1,694 Certificates Awarded.—The results of the recent examination for Certificates "A" and "B," Officers Training Corps, are as follows:—

(i) For Certificate "A" (Infantry), which is primarily intended as a qualification for a commission in the Territorial Army and Regular Army Reserve of Officers, now or in the event of a national emergency, 3,466 candidates were examined and 1,581 were successful. Eighty-one of these candidates (of whom 44 were successful) were from eight schools unconnected with the Officers Training Corps. A proportion of the marks of successful candidates also count in the Army Entrance and certain other examinations.

(ii) For Certificate "B," which is a more advanced certificate, open to the Senior Division only, and confers on the recipients certain antedates should they later be appointed to Commissions in the Regular or Territorial Armies, there were 197 candidates, and of these 113 were successful.

Annual Camps of O.T.C.—Camps for contingents of the Junior Division, O.T.C., situated in England, Wales and Northern Ireland will be held at Mytchett

Farm, Aldershot; Strensall, Yorkshire; Tidworth Park and Tidworth Pennings, Salisbury Plain, from 28th July to 5th August.

West of Scotland contingents will camp at Gailes from 29th June to 7th July, and East of Scotland contingents at Montrose from 29th July to 6th August.

FOREIGN.

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FRANCE.

STRENGTH OF THE ARMY OF THE LEVANT.—The French Army of the Levant has been considerably reduced. It now consists of 11 infantry battalions, 2 cavalry regiments, 4 artillery batteries, 2 camel corps companies, 3 armoured car squadrons, and 8 aeroplane squadrons.

This constitutes a reduction of six infantry battalions and three artillery batteries since the end of last year. The eleven battalions include the troops of the Syrian Legion (Arabs), about 5,500 in number.

This reduction completes the programme envisaged in the 1925 Budget.

All the troops of the Army of the Levant are stationed in French Syria, which is divided into the five military regions of—

Damascus, with H.Q. at	... ...	Damascus.
Euphrates	,, ...	Deir-es-Zor.
Aleppo	,, ...	Aleppo.
Alawite	,, ...	Latakia and
Lebanon	,, ...	Beyrouth.

Army headquarters are also at Beyrouth.

The larger proportion of these troops are stationed at the various headquarters, with small posts scattered throughout the area.

It should be noted that the above regions do not coincide with the political division of the country.

GERMANY.

THE GERMAN MILITARY BUDGET FOR 1925.—The salient feature of the "Reichswehrministerium" Budget for 1925 is the general increase of expenditure over that of 1924. This increase, after deducting an insignificant increase in income, amounts to M. 62,540,040 (£3,127,003), or 18 per cent. The cost of living index for January, 1925, exceeds that of January, 1924, by 12 per cent. only; this alone cannot therefore account for the 18 per cent. increase.

An examination of the detailed expenditure becomes necessary before a definite opinion on the subject of this increase can be formed.

The most significant gross and percentage increases shown in the detailed expenditure are for (i) arms, ammunition and explosives, and (ii) equipment and clothing.

(i) With reference to the expenditure proposed on arms, ammunition and explosives, this amounts for 1925 (not including a comparatively small vote for upkeep of arms and ammunition at ordnance depôts) to M. 65,984,670, as compared with M. 49,360,498 in 1924, an increase of M. 16,624,172, or approximately 34 per cent. The amounts quoted also exclude the pay and allowances of *personnel* involved (including the staff of the Inspectorate of Arms and Equipment). The reasons given in the estimates for this increase vary, but the most interesting is that ammunition and explosives taken over from war stocks

have now become so useless and dangerous with age that their replacement is an urgent necessity. Although this reason is possibly to a large extent correct, it would be interesting to know why the grants for this purpose were not higher last year, when the ammunition and explosives in question must have been in nearly as bad a condition as they are now, the difference between six and seven years in age being insignificant in its effect on the explosives.

The small reductions which are shown from time to time in items of detailed regular expenditure are in almost every case more than counterbalanced by fresh non-recurrent expenditure on similar items in other sections of the estimates.

(ii) Expenditure on equipment and clothing amounts this year to M. 75,079,930, as compared with M. 62,129,290 for the same items in 1924, an increase of M. 12,950,640, or approximately 21 per cent. The amounts quoted include all expenditure on equipment of every kind, excepting buildings of all natures, and stationery. A fair comparison in the case of buildings is impossible, since several buildings (ammunition sheds, barns, forage rooms, etc.) were destroyed by fire last year and must be replaced in 1925. On the other hand, all technical equipment, such as medical, veterinary and signalling equipment, is included in this sum.

The increase is general throughout the listed items, but the main increment is due to a few large *new* items in the non-recurring expenditure of the regular budget, such as—

	Marks.
(*a*) Anti-gas equipment	1,350,000
(*b*) Field kitchens, G.S. wagons, etc.	2,000,000
(*c*) Repairs to medical equipment	150,000
(*d*) Trench mortar spare parts	200,000

and numerous other smaller items of the same nature. With regard to anti-gas equipment, there is a further increase in the regular expenditure of nearly M. 500,000.

The most notable increase in the regular expenditure is one of M. 4,606,400 for "Upkeep, replacement and adaptation of general equipment of all arms" (1925, M. 11,066,500; 1924, M. 6,460,100). It is stated in a note appended to this item that the grant made hitherto for "Upkeep" has been found to be insufficient for the purpose. Nevertheless, the increase appears to be disproportionately large.

Another important item is pay and allowances. In the budget the votes are shown in three ways:—

(1) *Pay and allowances of officers, medical officers, veterinary officers, non-commissioned officers and men of the regular establishment.*

This category is shown in a separate section of the budget.

(2) *Pay and allowances of civilian officials of the regular establishment.*

This is shown in each section of the budget dealing with a department where such officials are employed.

(3) *Pay and wages of supernumerary officials, non-official employees and workmen.*

This is shown in the same manner as category (2) above.

(1) *Pay and allowances of officers, non-commissioned officers and men of the regular establishment.*

The 1925 estimate is for M. 100,435,000, as compared with M. 82,242,000 in 1924, showing an increase of M. 18,193,000, or approximately 22 per cent.

The number of officers budgeted for is as follows :—

	Pay per annum. Marks.
(*a*) 3 generals	at 18,000
(*b*) 14 lieutenant-generals, 1 chief medical officer	at 14,400
(*c*) 25 major-generals, 1 staff medical officer, 1 staff veterinary officer	at 12,000
(*d*) 105 colonels, 10 medical officers, 2 veterinary officers ...	at [1]6,300–9,600
(*e*) 190 lieutenant-colonels, 22 medical officers, 16 veterinary officers	at 4,860–7,200
(*f*) 380 majors, 47 medical officers, 48 veterinary officers ...	at 4,200–6,300
(*g*) 128 medical officers, 88 veterinary officers	at 3,600–5,400
(*h*) 1,122 captains	at 2,820–4,140
(*i*) 55 medical officers, 30 veterinary officers	at 2,400–3,600
(*j*) 653 lieutenants	at 2,100–3,120
(*k*) 1,305 second lieutenants	at 1,296–1,824

With reference to the above table, captains with more than two years' service *as such* are paid on the scale shown for (*g*).

Lieutenants with more than four years' service as such are paid on the scale shown for (*i*).

Second lieutenants with more than four years' service as such are paid on a scale of which the minimum is M. 1,596 and the maximum M. 2,376 per annum.

With regard to the pay of officer officials—329 paymasters, musical inspectors, armourers, saddlers, etc., are distributed amongst the categories marked (*h*), (*i*), (*j*) and (*k*) above.

As far as other ranks are concerned, the following table shows the number budgeted for and the scales of pay :—

	Pay per annum. Marks.
(*a*) 6 junior doctors, 5 veterinary surgeons, 36 bandmasters...	at 1,596–2,376
(*b*) 1,356 warrant officers, 1st Class, and equivalent ranks (*Oberfeldwebel*, etc.)	at 1,296–1,824
(*c*) 4,437 warrant officers, 2nd Class, and equivalent ranks (*Feldwebel*, etc,)	at 1,104–1,572
(*d*) 14,457 senior N.C.Os., etc. (*Unterfeldwebel, Unteroffizier*, etc.)...	at 960–1,380
(*e*) 38,000 junior N.C.Os. and senior privates (*Ober-Gefreiter* and *Gefreiter*)	at 876–1,272
(*f*) 36,499 private soldiers	at 804–1,164

There are several interesting points to be noticed in these figures. These may be broadly summed up in the observation that, the senior ranks are quite out of proportion to the junior ranks, both in the case of officers and of the rank

[1] The figures for pay given in this and subsequent sub-headings are the maximum and minimum receivable by the ranks in question. The pay varies between these two limits for every two years' *total* service of the officer in question.

and file. In an army of 100,000, of which 4,290 are officers, only 36,499 men are without a "stripe" of some kind.

The actual general increase in pay is explained by the promotions indicated and by the sliding scale of increases for each two years of service which prevails, not only in the Army but throughout the entire officialdom of the Reich.

(2) *Pay and allowances of civilian officials of the regular establishment.*

The total for 1925 amounts to M. 10,278,820, as compared with M. 7,749,143 for 1924, an increase of M. 2,529,577, or approximately 32 per cent. Included in this total is the pay and allowance of all permanent officials from the *Staatssekretär* (*Chef der Heersverwaltung*), who is paid as a general, to innumerable porters, doorkeepers and messengers paid as junior non-commissioned officers. The increase of 32 per cent. is due to promotions and to movements up the sliding scale of pay mentioned in sub-paragraph (*i*) above.

(3) *Pay, etc., of supernumerary officials, non-official employes and workmen.*

This amounts to a total of M. 6,452,130, as compared with M. 5,097,766 for last year, thus representing an increase in 1925 of M. 1,354,364, or 26 per cent. The reason given in almost every case for this increase is the same—*i.e.*, rise in the cost of living. The actual numbers of *personnel* included under this heading have not changed. Generally speaking, the numbers are high, but it is impossible from the Budget alone to estimate them correctly, as in many cases the numbers of supernumerary officials budgeted for are not given.

No provision has been made for the *personnel* of the "Army Peace Commission" nor for the "*Liaison* Section." These are supernumerary to the Army establishments, and their duties are entirely dependent on the execution of the Versailles Treaty. Their appearance in the Budget, therefore, can only be regarded as temporary.

With regard to training grants (as apart from grants for education, sport and physical training), the total for the various sections is, for 1925, M. 25,803,570, as compared with M. 22,417,393 for 1924, an increase of M. 3,386,187, or approximately 15 per cent. This sum does not include grants for buildings, etc., on training grounds, nor does it include the non-recurring expenditure on the movement of the Infantry School from Munich and Ohrdruf to Dresden. (1925, M. 5,000,000; 1924, M. 1,500,000.)

The largest item in this year's total is one of M. 11,470,100 (1924, M. 11,470,095) for training of small mixed forces. M. 3,982,400 (1924, M. 2,223,000) is ear-marked for autumn manœuvres. Last year only four divisions took part in these manœuvres. The increase is presumably intended, therefore, to enable all seven infantry divisions to attend this year.

The sum of M. 1,061,000 (as in 1924) is again demanded for staff rides and similar instruction of officers.

The grant to the staff and fighting branches (infantry, cavalry, artillery) for training, not unreasonably forms the bulk of the whole. It amounts to M. 18,850,600, as compared with M. 16,735,765 in 1924. As a large proportion of this increase is explained by the grant for autumn manœuvres, there is little to be commented on in these figures.

With regard to other branches, separate training grants are shown for

engineers (*Pioniere*), transport services, signal service, medical service and veterinary service. The amounts are as follows:—

	Marks.		Difference.
	1925.	1924.	
			per cent.
Engineers	6,166,500	5,192,674	+ 19
Mechanical transport service	27,700	14,750	+ 88
Horse transport service	19,800	19,800	Nil
Signal service	648,100	356,294	+ 82
Medical service	69,800	64,800	+ 7
Veterinary service	21,070	33,310	− 36

It will be noticed that the sole decrease in the above estimates for this year as compared with those for 1924 is one of 36 per cent. for the veterinary training grant. It is stated in this connection that the number and duration of advanced veterinary courses has been considerably reduced. On the other hand, in the grants for the three technical branches considerable increases are recorded. The period of special training for the mechanical transport service has been doubled this year, and thus accounts for the large percentage increase. The signal service is to undergo a period of six days' practical training, which is described as "indispensable" and which accounts for almost the entire increase recorded.

As in other armies, it is evident that the Reichswehr is taking a considerable interest in the technical side of modern warfare, although it is somewhat hampered by the conditions of the Treaty of Versailles.

Generally speaking, the conclusion to be drawn from the figures in this section is that, in the eyes of the Reichswehrministerium, the state of efficiency of the German Army is improving at a sufficient rate to justify increased expenditure on exercises on a large scale, and on the advanced training of technical *personnel*.

It is impossible to include every aspect of the German military budget in this article. The headings touched upon are those which are of primary importance in any attempt to deduce from the Budget alone the present and future development of the Reichsheer.

The headings dealt with, expressed as a percentage of the total expenditure for 1925 and 1924, are as follows:—

	Percentage of Army Estimates.	
	1925.	1924.
	per cent.	per cent.
1. Arms, ammunition and explosives ...	16	14
2. Equipment and clothing	18	18
3. Pay and allowances	28	27
4. Training	6	6

Thus the headings dealt with cover 68 per cent. of the 1925 estimates, and 65 per cent. of those for 1924. The remaining expenditure is divided amongst numerous sub-headings, the largest of which is Rations and Forage. This latter item, however, has scarcely varied, and is unlikely to do so as long as the strength of the army remains constant.

The foregoing examination of the German Army Estimates (which constitutes approximately 7 per cent. of the total Budget of the Reich this year, as compared with 5 per cent. in 1924) leads to the conclusion that the military authorities are enjoying a considerable measure of success in their efforts to mould the Reichsheer into its final form, *i.e.*, an admirably armed and equipped body of well-disciplined, highly-trained military specialists destined to be a ***cadre*** for national mobilisation in case of war.

TRAINING AND MANŒUVRES.—Company, battalion and regimental training was carried out in the course of the year, and good progress was recorded. Towards the end of the summer, small mixed forces, based on the infantry regiment, trained on the regular training grounds (Truppenübungsplätze) for short periods.

In September, manœuvres on a larger scale were carried out as follows:—

Formations.	Areas.	Remarks.
I. Division	East Prussia	Independent divisional exercises in own area.
V. Division	Borders of V. and VII. Divisional Areas.	Sporadic exercises by portions of the divisions concerned. Not general manœuvres.
VII. (Bavarian Division).		
III. Division... ...	III. Divisional Area (Brandenburg, etc.).	General concerted manœuvres, culminating in a grand parade and inspection by the *Chef der Heeresleitung*.
II. Division (2 regiments only).		
2nd Cavalry Division		

Of the above, the last named was the first post-War attempt to emulate the "*Kaisermanöver*" of the old Imperial Army. Although the forces involved were, of necessity, small, the manœuvres were so successful that it is proposed to repeat them on a larger scale in 1925.

AIR NOTES.

ROYAL AIR FORCE.

Appointments and Promotions.

Appointments.—Air Commodore D. le G. Pitcher, C.M.G., C.B.E., D.S.O. from Air Ministry (D. of E.) to No. 7 Group, 1.4.25, vice Air Commodore A. M. Longmore, C.B., D.S.O.; Air Commodore A. M. Longmore, C.B., D.S.O., from No. 7 Group to Air Ministry (D. of E.), 1.4.25, vice Air Commodore D. le G. Pitcher, C.M.G., C.B.E., D.S.O.; Air Commodore L. E. O. Charlton, C.B., C.M.G., D.S.O., from No. 3 Group to Air Ministry (A.M.S.R.), 10.12.24, for Special duty. Air Commodore C. L. N. Newall, C.M.G., C.B.E., A.M., from H.Q., Coastal Area to H.Q., Special Reserve and Auxiliary Air Force, 14.5.25, as Air Officer Commanding.

Promotions.—The following are promoted with effect from 1st July :—

General Duties Branch.

Air Commodores to be Air Vice-Marshals.—C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C.; T. I. Webb-Bowen, C.B., C.M.G.

Group Captains to be Air Commodores.—L. F. Blandy, C.B., D.S.O. (Lt. Col., Reserve list, R.E.). I. M. Bonham-Carter, C.B., O.B.E.; F. V. Holt, C.M.G., D.S.O.

Medical Branch.

Air Commodore to be Air Vice-Marshal.—D. Munro, C.B., C.I.E., M.B., M.A., F.R.C.S. (E).

Expansion of the R.A.F.

Cadetships.—The expansion of the Royal Air Force in accordance with the Home Defence Scheme makes it necessary to obtain a considerably increased number of candidates for cadetships.

The next examination of candidates for entry as flight cadets to the Royal Air Force Cadet College, Cranwell, in January, 1926, will begin on November 17th. On this occasion not less than 35 cadetships will be offered. Forms of entry, which can be obtained from the Secretary, Civil Service Commission, Burlington Gardens, W.1, will not be accepted, in any circumstances, later than September 17th.

Candidates should be medically fit and be between the ages of 17½ and 19½.

Successful candidates, after passing the Royal Air Force Medical Board, undergo a two years' course at the College, where, in addition to continuing their general education, they receive a thorough training in all questions concerning military aviation and cognate subjects, and also graduate as Service pilots, following a lengthy period of flying training from skilled instructors.

On passing successfully out of Cranwell, flight cadets are granted permanent commissions. They have before them a life career, with good prospects of rising by their own efforts to the highest ranks. There is no question of their compulsory retirement on the ground that they have become too old for service as pilots. The work offers great scope both in its military and in its technical aspects to young men of ability, and facilities

are given to officers to specialise in aeronautical engineering, wireless telegraphy, aerial gunnery and other subjects.

COST TO PARENTS.—The total cost to a parent of putting his son into the Royal Air Force through Cranwell is about £250 for the two years' course. For flight cadets who are successful in obtaining prize cadetships or who are eligible for reductions in fees in respect of their father's service in the fighting forces the total cost of the two years' training is considerably less.

On first commissioning as Pilot Officers at the age of 20 or 21, officers receive total emoluments amounting at present rates to about £450 a year and need no further assistance from their parents. After 18 months' service they become eligible for promotion to the rank of Flying Officer with substantially increased rates of pay, the total emoluments at present rate being about £540.

R.A.F. AS A CAREER.—The Air Ministry considers that the career offered by the Royal Air Force compares very favourably with that offered by any other profession and they desire to emphasise that to take advantage of that career it is quite unnecessary to be possessed of private means. The expenses in Royal Air Force Messes are strictly limited and officers even of the most junior rank have no difficulty in living on their pay.

Full details as to entry into Cranwell are contained in Air Publication 121, "Regulations for Admission to the Royal Air Force Cadet College" (price 6*d*. net), and more general information as to the career offered by the Royal Air Force is provided in an official handbook entitled "The Royal Air Force as a Career" (price 3*s*.). These publications can be obtained through any bookseller or direct from H.M. Stationery Office, Kingsway, W.C.2.

SHORT SERVICE OFFICERS.—The Air Ministry is prepared to accept at once, approximately 100 officers for flying duties, under the Short-service Commission scheme, and applications are accordingly invited from suitable candidates. Part of these are required as a result of the authorised expansion of the Air Force for home defence, the remainder being needed to replace other Short-service officers who automatically pass to the Reserve of Air Force Officers on termination of their period of service on the Active List.

Candidates, who should be of thoroughly good education and physique but who need not have had any previous flying experience, must not be less than 18 and not more than 25 years of age at the time of entry. Those judged from their applications to be suitable will be interviewed by a Selection Committee, and those selected, after passing the standard R.A.F. Medical examination, will be gazetted as pilot officers on probation. The probationary period is six months, after which, subject to satisfactory progress, officers are confirmed in rank.

Short-service commissions are granted for five years' service on the Active List, followed by a period of four years' service on the Reserve.

For all purposes of pay, allowances, and promotion, short service officers receive equal treatment with officers holding permanent commissions. The present rates of pay and allowances for unmarried pilot officers amount to £1 4*s*. 11*d*. a day, or about £450 per annum. In addition, short-service officers receive on transfer to the Reserve on the completion of their period of five years' active list service, a gratuity of £375.

When they are transferred to the flying branch of the Reserve they receive a retaining fee of £30 per annum and are required to carry out 12 hours' solo flying training each year on up-to-date war-type aircraft. During such training they receive the pay and allowances of their rank.

A strictly limited number of officers serving on short service commissions may be selected for transfer to the permanent list.

Arrangements have also been made for all officers, who desire it, to receive special tuition from the R.A.F. education officers, who have been recently appointed, to equip themselves for civil life against the time when their period of service terminates. These educational facilities are being gradually extended.

Organisation, Development and Training.

Parachutes.—It has been decided to equip the Royal Air Force with the Irvine type parachute. The Orders which have been issued with regard to its use state that when supplies become available in units, no flight is to be made without wearing the parachute. Live jumps are voluntary. Approximately sixty-five live jumps have so far been made.

Officers Training Corps.—It has been decided to form an Air Squadron at both Oxford and Cambridge Universities. The work of these squadrons during the term will consist of courses of instruction in engines, rigging, signals, aerial gunnery, and reconnaissance. During the long vacation members of the air squadrons will be instructed in flying and observation work.

R.A.F. Display, 1925.

The Royal Air Force Display was held at Hendon on the 27th June for the sixth year in succession in the presence of their Majesties the King and Queen. The Duke and Duchess of York were also present, and Members of the Cabinet and of both Houses of Parliament, representatives of the Navy and the Dominions, foreign Ambassadors, naval, military and air attachés and other distinguished visitors attended. The official programme started at 3.0 p.m., but preliminary heats and aerobatics on various types of aircraft were carried out from 1.30 p.m. onwards.

The *1st event* was a landing competition for a cup presented by the Duke of York. The competitors had to switch off their engines at 1,000 feet and attempt to land in a " field " 150 yards square, marked out in the middle of the Aerodrome. This event was won by Sergeant Snaith, No. 2 flying Training School.

The *2nd event* was the final heat of the message picking-up competition. In this event a message contained in a bag is suspended on a line stretched between two poles and the aeroplanes pick up the message by means of a trailing line provided with a grapnel and controlled by the observer. The observers have to pick up the message, write a reply and drop it back at the message picking-up station. Each competitor is timed from the moment the message is taken up until the answer is handed to the Umpire.

No. 4 (Army Co-operation) Squadron won this event. The pilots were F/O R. G. Mullette and F/O R. T. Halliwell and the observers were F/O A. D. Davies and P/O M. D. Ommanney.

The *3rd event* was a light aeroplane race open to Directorates of the Air Ministry. This was won by Wing Commander W. S. Douglas, with Air Commodore C. A. H. Longcroft second and Flight Lieutenant W. F. Dickson third.

The *4th event* was the fly past of new and experimental machines, which included the " Gamecock " single seater fighter with a 400 h.p. Bristol Jupiter; the " Springbok " all metal Army Co-operation aeroplane with a 400 h.p. Bristol Jupiter; the " Hedgehog " three seater reconnaissance aeroplane with a 400 h.p. Bristol Jupiter;

and the " Cubaroo " torpedo carrier and coastal defence aeroplane with a 1,000 h.p. Napier " Cub, " and several aeroplanes for Civil aviation.

The *5th event* was Squadron Drill with radiotelephony. This was carried out by No. 25 Fighter Squadron with nine " Grebes," under the command of Squadron Leader A. H. Peck, D.S.O., M.C. Hitherto the leader of a Squadron carrying out Air Drill has signalled his orders to the other pilots of the formation by means of a code, either by hand or movements of his aeroplane. The advent of radiotelephony, however, enables the leader to speak to his commands. He is in communication with all the other pilots as well as the ground. He is able to give individual orders to pilots in his formation. On this occasion His Majesty the King commanded the formation for a few minutes by means of a microphone in the Royal Box.

The *6th event* was an aerial combat between a twin-engined bomber and two single seater fighters. Squadron Leader W. H. Longton, D.F.C., A.F.C., gave a remarkable exhibition of aerobatics on the twin engined bomber.

The *7th event* consisted of Wing Evolutions by four bombing squadrons making a total of 36 aeroplanes.

The *8th event* was a demonstration of low bombing by the winners and runners up of a competition. The converging method of attack was employed wherein the flight breaks formation and the machines attack from all sides alternately and on converging courses.

This was followed by another demonstration by the winners and runners up of a competition for Flight Evolutions. This demonstration showed the various movements carried out in attacking a single hostile aeroplane or a formation. Three parachute descents were then made to demonstrate the new parachute equipment which is being adopted by the Royal Air Force.

As on previous occasions the afternoon's proceedings closed with a spectacular set piece, which, this year, represented the destruction of a commerce raider, which had taken refuge up a tropical river.

Projected Flights.

Cairo–Nigeria Flight.—Arrangements are being made for two long distance flights across Africa by Service aeroplanes from Cairo. The first of these is to be to Nigeria and will be undertaken in the autumn of the present year. A short stay will be made in Nigeria before the return flight.

Cairo–Cape Flight.—The second flight which, will probably take place in the spring of 1926, is from Cairo to the Cape and back. The flight is expected to extend to a period of about three months, a route somewhat similar to that taken by Sir H. A. Van Rynevelt and Sir Christopher Brand in 1920 will be followed.

NAVAL CO-OPERATION.

(*See also " Fleet Air Arm "—Navy Notes*).

Aircraft from H.M. Ships " Argus " " Eagle " and " Hermes " have worked as usual under their respective Commanders-in-Chief. The disembarked flights at Malta and No. 481 Float-plane flight have maintained their usual routine of training and co-operation with H.M. Ships and their units at Malta.

At the end of July, flying boats of No. 480 flight, Calshot, carried out extended exercises in the Channel with submarines. This flight is in the process of being re-equipped with the " Southampton," a new type of Flying Boat.

ARMY CO-OPERATION.

The affiliation of Squadrons to Army commands for training purposes, arranged in 1924, is being continued this year. No. 2 (A.C.) Squadron is affiliated to the Eastern Command, No. 3A and 13 (A.C.) Squadrons to the Aldershot command and No. 16 (A.C.) Squadron to the Southern command. A special flight is being formed from the School of Army Co-operation to co-operate with the Cavalry Division during September.

Air observation for the artillery of each command this year is being provided by the Squadron which is affiliated to the command for Training. Thus a detachment of No. 2 Squadron is located at a temporary landing ground near Okehampton to observe for the artillery of the Eastern command who are practising at that place. Observation for the artillery of the Aldershot command practising on Salisbury Plain is being provided by Nos. 4 and 13 Squadrons and for the Southern command artillery by No. 16 Squadron. A special flight has been formed to co-operate with the coast artillery School at Shoeburyness.

In order to provide co-operation for the anti-aircraft defence brigades during their practice camps at Watchet, No. 100 Squadron has moved to a temporary landing ground at Weston Zoyland in Somerset. Aeroplane co-operation is also being provided for the independent anti-aircraft searchlight companies of the Territorial Army during their annual training at Gosport in June and August.

Arrangements have been made to provide aeroplanes to co-operate with the Senior and Junior divisions of the O.T.C. in camp at Shorncliffe, Arundel, Fleetwood, Rhyl, Mytchett, and Tidworth.

Owing to the demands made upon the Army Co-operation Squadrons for army manœuvres and the preliminary training of the army units and formations taking part in them, it has not been possible this year to arrange for aeroplanes to co-operate with units of the Territorial army in the Northern, Western, or Scottish commands, nor with the Army on the Rhine.

During army manœuvres in September, in addition to the army co-operation Squadrons and the special flight for the Cavalry Division, Nos. 25 and 56 fighter Squadrons and Nos. 39 and 207 Bombing Squadrons will be at the disposal of the Army.

OVERSEAS COMMAND.

IRAQ.

GENERAL.—During March and April the Secretary of State for Air and the Secretary of State for the Colonies, accompanied by Staff Officers, visited Iraq, Palestine, Trans-Jordania and Egypt. From Egypt onwards all travelling was done by air, which enabled the Secretaries of State to visit many more places in the short time at their disposal than would have been possible by other means of transport.

This was particularly apparent in Iraq, where they visited Mosul and flew along the line of the Northern Frontier, thus seeing places which were inaccessible at that time to anything but air transport. Erbil, Kirkuk, Sulaimaniyah and Basra, from which place they visited the Anglo-Persian oilfields in Arabistan, were all visited in a few hours.

The total mileage covered by air was approximately 3,500, with 49 hours' actual flying.

TRAINING has progressed steadily; a considerable amount of work has been done in co-operation with Army units. During March No. 70 Squadron made

over 60 flights, during which approximately 600 men of the Bedfordshire and Hertfordshire Regiment were given air experience.

SULAIMANIYAH.—Shaikh Mahmoud's activity in the area around Sulaimaniyah is again on the increase, and during March his propaganda was very marked. In addition, bands of his supporters became active in gathering taxes in the districts coming under his influence. Aeroplanes have made various demonstration flights with a view to counteracting this increased activity.

On the 23rd and 24th March detachments of the Iraq Army were engaged with rebels, whilst, on the 26th, reconnoitring aircraft attacked and killed two of a small party of rebel horsemen near Muhun, 22 miles E.S.E. of Sulaimaniyah.

On the 13th April a body of Mahmoud's supporters raided Halabja and looted the bazaar. Air action was taken immediately, with the result that the men surrendered and all loot was returned.

On the 21st April Mahmoud with a considerable force attacked and captured some villages of the friendly Pizhder tribe. Air action was taken against his forces, and the tribesmen were then able to drive out the rebels. The villages to which Mahmoud and his supporters retired were also attacked by air action.

During May and June the rebel forces increased in numbers and air action was taken against various villages occupied by them, and punitive columns also operated from Sulaimaniyah with co-operating aircraft. One of these columns, composed of Levy Cavalry, was heavily engaged by hostile forces on 20th and 21st May. Many casualties were inflicted on the enemy both by the cavalry and supporting aircraft; the Levy Cavalry lost 10 killed and 18 wounded.

Air action was taken against the tribes concerned in this attack and a punitive column of Levies and Iraq Army also took retaliatory measures.

A great improvement in the situation has resulted from the Government's energetic measures and Government authority has been established in the Halabja and Choartah areas.

JEBEL SINJAR.—During March the situation in the Jebel Sinjar area was disturbed by intertribal fighting, caused by the rivalry between two Yezidi chiefs, Daud al Daud and Hamo Shero. The chiefs were summoned to attend a Government conference to settle the dispute, but they refused to attend. Final orders to them were dropped by aeroplane on the 16th April and on the 17th notices were dropped with the warning that air action would commence in 6 hours. Hostilities continued and therefore air action was taken on the 17th, 18th, 21st, and 24th. Heavy ground fire was encountered by the machines on these raids. By the end of the month all was quiet in the area and all the leaders concerned had surrendered, with the exception of Daud al Daud, who still remains a fugitive. The fine of rifles imposed on Daud's followers has, however, been paid by them.

One aeroplane crashed during the bombing operations and was totally destroyed. Enemy rifle fire appears to have been the cause.

NORTHERN IRAQ.—On 4th May a party of Sindi Kurds attacked a party of police near Shiranis, killing six and wounding two. Air action was taken against the villages to which the attackers retired, with good results. All the leaders, with the exception of one who fled the country, surrendered to Government authority and the police have since carried out their duties unmolested.

SHERGAT AREA.—During May about 70 Bedouin raided some villages near Shergat and looted a number of sheep. Aircraft from Mosul located the raiders and dispersed them with three casualties, forcing them to abandon their loot.

RECONNAISSANCES.—During March and April armoured cars with co-operating aircraft carried out several extensive reconnaissances in S.W. Iraq and the vicinity of the Iraq-Nejd frontier.

ATTACK ON EASTERN TRANSPORT COMPANY CONVOY.—On the night of the 5/6th March an attack was made on two cars belonging to the Eastern Transport Company whilst they were crossing the desert in the vicinity of Muhawir on the Wadi Hauran. One passenger was killed. Aircraft and armoured cars assisted the local Government authorities in investigating the affair. Several arrests were made and the money and valuables looted were recovered.

INDIA.

GENERAL.—The squadrons in India have carried out their normal training programmes except in so far as they were interrupted by the operations during March and April (*see* below). A great deal of work has been carried out in co-operational training with the Army and a considerable amount of time has been spent on aerial survey work.

During January six machines carried out a long distance training flight from Rislpur to Calcutta and back—a distance of nearly 3,000 miles.

OPERATIONS.—During the months of March and April of this year an opportunity was accorded to the R.A.F. in India to undertake a series of operations against certain tribes in Waziristan, unaided by Army troops.

The operations were undertaken to enforce compliance with the orders of the Government upon the Abdur Rahman Khel, the Faridai, Maresai, and Guri Khel. These tribes had for some months past been seriously involved in raiding for arms, sniping scouts and abducting Hindus. A series of protracted negotiations preceded the operations, and it was in December, 1924, that the Resident requested the sanction of air operations; authority to do so was not received till 5th March.

A Wing H.Q. and three Squadrons moved to Tank and Miramshah, and commenced operations on 9th March.

Intensive attacks, punctuated by frequent intervals to receive jirgas that proved insincere in their overtures, marked the opening stages of the operations. On the 21st March the Guri Khel submitted. Attacks were maintained against the three remaining tribes by day and night with good effect. The night flights greatly alarmed and impressed the tribesmen. By the middle of April they realised the futility of further resistance, and although *pourparlers* lasted for nearly a fortnight, all the tribes offered complete submission by 30th April.

The operations, which lasted 52 days, achieved their object most satisfactorily. During the period under review, 2,713 hours were flown.

These operations were the first in the history of the N.W. Frontier to be undertaken solely by air forces; and they not only enforced a complete submission on all the tribes attacked, but also so impressed and awed the neighbouring tribes that several long outstanding fines were paid up in full by them.

ADEN AND SOMALILAND.

During February a section of the Shukra tribe looted some ammunition from some friendly tribes. A party of 25 Indian other ranks under a British officer was sent out to recover the loot. Some machines from the Aden flight located the raiders and kept the leader of the column informed as to their movements. This enabled him to recover all the ammunition.

EGYPT AND SOUDAN.

The situation in Egypt remains quiet. Normal training and co-operation work have been carried out by the Royal Air Force. The detached flight of

No. 47 Squadron is still stationed at Khartoum and has been occupied in normal training, co-operation work and local flights.

DOMINION AIR FORCES.

CANADA.

PEACE ESTABLISHMENT.—The following Peace Establishments for the Royal Canadian Air Force (Permanent) are authorised, with effect from 1st December, 1924 :—

1. *Personnel.*

Officers.	General List.	Non-Flying.	Total.
Group Captain	1[1]	—	1
Wing Commanders	5	—	5
Squadron Leaders	8	—	8
Flight Lieutenants	16	2	18
Flying and Pilot Officers	30	8	38
Total Officers	60	10	70

Other Ranks.	Trades-men.	Standard.	Total.
Warrant Officers, (Cl. I)	7	1	8
Warrant Officers, (Cl. II)	3	—	3
Flight Sergeants	19	—	19
Sergeants	49	1	50
Corporals	58	2	60
Aircraftmen	161	36	197
Total Other Ranks	297	40	337

2. *Units.*

Headquarters	Ottawa, Ont.
R.C.A.F. Station, Vancouver	Vancouver, B.C.
R.C.A.F. Station, High River	High River, Alta.
R.C.A.F. Station, Winnipeg	Winnipeg, Man.
R.C.A.F. Station, Ottawa	Ottawa, Ont.
R.C.A.F. Technical Depôt	Ottawa, Ont.
R.C.A.F. Photographic Section	Ottawa, Ont.
R.C.A.F. Station, Dartmouth	Dartmouth, N.S.
R.C.A.F. Station, Camp Borden	Camp Borden, Ont.

[1] Effective 27th June, 1924.

CIVIL AVIATION.

LIGHT AEROPLANE CLUBS.—The scheme for the assistance of Light Aeroplane Clubs, to which reference was made in the last issue, has been finally agreed, with one slight modification, which is with regard to the supply of equipment. In the scheme which was under consideration the Air Ministry undertook to supply two dual control light aeroplanes and one spare engine, etc., to a total value not exceeding £2,000 to each club. This has been amended to allow the clubs to purchase their own machines, for which the Air Ministry will pay up to a maximum value of £2,000.

Five clubs have been sanctioned at London, Birmingham, Manchester, Yorkshire and Newcastle. The London club will be controlled by the Royal Aero Club, which acts in a co-ordinating capacity on behalf of the other clubs. All the clubs have adopted the De Havilland " Moth " light aeroplane.

AERIAL SURVEY.—The Air Survey Company, which last year carried out an aerial photographic survey of the Irrawadi Delta for the Government of Burma, and is this year engaged on a further survey in Burma, has now obtained a further contract from an oil company to photograph 1,360 square miles in North Borneo.

The Aircraft Operating Company, which has recently acquired Aero Films, Ltd., is to carry out a survey covering 50 square miles for the Ordnance Survey Department in order to test the value of aerial photographic survey for purposes of accurate revision of the large-scale ordnance survey. In addition, this company has also obtained a contract from a London firm of publishers for the survey of London, covering an area of about 100 square miles.

CAIRO–KARACHI ROUTE.—As a result of the visit to Iraq of Sir Samuel Hoare, Secretary of State for Air, and the survey of the route to India by Sir Sefton Brancker, Director of Civil Aviation, it has been decided by the Air Council to call for tenders for the operation of an air service by a civil air transport company from Kantara to Karachi, *vid* Baghdad.

The existing air mail service operated by the Royal Air Force between Cairo and Baghdad would be discontinued upon the establishment of the new service, the facilities now at the disposal of the R.A.F. being placed at the service of the operating company.

It is probable that in the first instance passengers will be carried between Kantara and Basra only; but mails and goods will be carried over the whole route. From Basra passengers will be able to proceed to India by boat.

THE KING'S CUP RACE.—The air race round Great Britain for the King's Cup, flown in two circuits of 804 miles a day, on 3rd and 4th July, was won by Captain F. L. Barnard, flying a Siskin V. single-seater, entered by Sir Eric Geddes, chairman of Imperial Airways, Limited.

Squadron Leader H. W. G. Jones, R.A.F., also flying a Siskin, was second, and Major H. Hemming, on a D.H. 37, third.

The course flown on the first day of the race was from Croydon to Harrogate, Newcastle, Renfrew, Shotwick (Sealand), Bristol and back to Croydon, the circuit being made in the reverse direction on the second day.

Owing to extremely unfavourable conditions of visibility on the first day, only four machines succeeded in completing the circuit and the remaining competitors were eliminated. An extra race over a shorter circuit was, therefore, organised on the second day for the benefit of those who had fallen out. This race, known as the " Croydon Stakes," attracted five entries and was won by the Master of Sempill, flying a D.H. 51.

AVIATION IN FOREIGN COUNTRIES.

AFGHANISTAN.

MACHINES.—The machines now held by the Afghans are: two Bristol Fighters, four D.H. 9s and one Junker's passenger machine. There are some old machines which have never been flown in Afghanistan.

One of the Bristol Fighters was damaged during the Afghan Government's operations against the Khost rebels in September, 1924, and is still out of action.

Two of the D.H. 9s were badly damaged during the latter months of 1924 and are still unserviceable.

It is understood that some more machines are shortly to be delivered by the Russians.

No flying has taken place between the end of December and April on account of the winter conditions at Kabul.

On 31st May a severe storm wrecked three of Mr. Murphy's machines which were at Peshawar awaiting delivery to the Afghan Government.

PERSONNEL.—The *personnel* of the Afghan Air Service consists of nine pilots, of whom one is an Afghan and the remainder Russians, Germans, etc.

There are eight mechanics, mostly Russians.

AERODROMES.—The new aerodrome at Sherpur near Kabul, which will ultimately take the place of the present one at Kwaja Rawash, is still under construction.

A landing ground has been made at Jelalabad. One is also being constructed at Kandahar. The landing grounds on the route between Termez and Kabul, at Haibak and Charikar are understood to be in a fit condition for use.

BELGIUM.

FIRST BELGIAN AERO ENGINE.—The first Belgian aero engine has been constructed by the Minerva Engine Co. at Antwerp. It is an eight-cylinder Vee type of 150 h.p. and weighs 225 kg.

The first official tests of the engine, with a Belgian constructed aeroplane, were to take place at Deurne, near Antwerp, on 21st June, but no particulars as to the result are known.

FRANCE.

ESTIMATES.—The estimates for Military, Naval and Civil Aviation have not yet been finally passed. The following sums were voted by the Chamber of Deputies in March:—

Naval Air Service	111,799,800 francs.
Military Air Service	544,422,527 „
Civil Aviation	154,565,715 „

These were reduced in April and May by the Senate to the following amounts:

Naval Air Service	107,531,800 francs.
Military Air Service	463,828,177 „
Civil Aviation	152,581,700 „

According to constitutional procedure the amendments made in the Senate must be agreed to in the Chamber before the Estimates become law. A deadlock has arisen on account of the refusal of the Chamber to accept the amendments. The sums eventually voted will in all probability be somewhere between the two above-mentioned sums.

The following sum was voted by both Houses :—

Colonial Air Service ... ... 7,816,493 francs.

FRENCH OPERATIONS IN MOROCCO.—It is reported that two squadrons from France and eight from Algeria have been moved to the zone of operations in Morocco to strengthen the air units there.

RECORD GLIDING FLIGHT.—Lieutenant Thoret, of the Military Air Service, beat his own record for flight with a stationary propeller in April last, remaining in the air 3 hours 26 minutes. This performance was carried out with a Hanriot H.D. 14 aeroplane at St. Remy-de-Provence in the Alpilles.

ACTIVITIES OF THE NAVAL AIR SERVICE.—Interesting experimental flights have been recently carried out at the Naval Air Station at St. Raphael. Two sections of Farman seaplanes carried out a flight to Tunis. Six Farman seaplanes flew *vid* Ajaccio to Bizerta in two days, and three carried out the same flight in one day. Various other flights have been made and activity has undoubtedly increased at this station, and is generally apparent throughout the Naval Air Service.

GERMANY.

What may be described as a very successful Aviation Meeting took place in Germany during the ten days from 31st May to 9th June.

The competition involved five circular flights, each of approximately 1,100 km., each starting from and ending at Berlin, and in total practically covering the whole of Germany. The object of this competition was to test the efficiency, reliability and economic capacity of the competing aircraft.

For this purpose the competitors were divided into 3 classes :—

Class A up to 40 h.p.
Class B from 40–80 h.p.
Class C from 80–120 h.p.

Of the total of 90 machines entered, 52 actually took part and of these 20 completed the whole course of some 3,000 miles.

The reliability of machines varying from 40 h.p. to 100 h.p. far exceeded the expectations of the aircraft industry, but the smaller types up to 40 h.p. did not justify the hopes placed in them.

One important fact, however, has emerged, namely, that aircraft with comparatively low powered engines have proved themselves trustworthy in long-distance flights over difficult country in every kind of weather.

ITALY.

AIR ESTIMATES 1925–1926.—During the past quarter the Italian Air Estimates for 1925–1926 (1st July to 30th June) have been presented to Parliament, discussed and passed at the figure of 449 million lire, which is the equivalent of the amount (including supplementary votes) voted during 1924–1925. An additional sum of 90 million lire has, however, since been voted, bringing the total to date up to 539 million lire. The amount demanded by the Italian Air Ministry in the first instance, and which was reduced by the Ministry of Finance to the present figure on grounds of economy, was 702 million lire.

The Government Orator, who in Italy is responsible for introducing the Budget, stated that on 30th June, 1924, Italy possessed 60 squadrons with 650 aircraft in actual use. By the summer of 1926 it was the intention to increase these numbers

to 90 squadrons with 900 machines. More *personnel* was needed, not only to meet the demands of new squadrons but also to achieve better efficiency. The average number of men serving for every aircraft in commission was 15. This figure was very low and considerably under that of Great Britain, France and the U.S.A. The problem of engines was a difficult one, because research and experiment had been abandoned for practically four years between 1918 and 1922. High powered engines for single seater fighters were completely lacking, as were engines of 400 to 500 horse-power for bombing and reconnaissance aircraft, although there was a good 750 h.p. engine of Italian design. Competitions had been instituted and the first new Italian engines might be expected during the current year. Meanwhile the construction licences of the 400 h.p. Lorraine and 400 h.p. Bristol Jupiter had been acquired. Much had been done towards organising production in the national industry, but a satisfactory solution had not been found for all difficulties.

RE-ORGANISATION OF THE ITALIAN AIR FORCE.—It will be remembered that the Regia Aeronautica (Italian Royal Air Force) was created as an autonomous and separate service under a Commissariat (Government Department) of its own in March, 1923. Owing to the fact that aviation—naval, military and civil—had been almost entirely neglected during the four years succeeding the War from 1918 to 1922, the first consideration which attended the development of Italy's revived Air Force was the question of the provision of *personnel* and material. An Air Force comprising approximately 80 squadrons has since been formed, and the focus of attention is now being diverted more to the side of administration, organisation, and command. Evidence of this is contained in a Royal Decree which was signed on the 5th May, 1925, recasting the constitution of the Regia Aeronautica and laying down its final establishment of squadrons and *personnel*. The new organisation involves :—

(*a*) The re-casting of the Italian Air Force into

(i) An independent Air Arm comprising	78	squadrons.
(ii) An Army Air Arm	"	57	"
(iii) A Naval Air Arm	"	35	"
(iv) A Colonial Air Arm	"	12	"
Total		182	

(*b*) An increase of *personnel* to :—

26 General Officers.
1,904 General Duties Officers.
222 Technical Officers.
188 Administrative and Stores Officers.
29,226 Other Ranks.

It is understood that this expansion will range over five years. The decree further defines the following changes :—

(i) Civil Flying Schools at which all Service *ab initio* flying training is carried out will henceforth come under the control of the Italian Air Ministry, though they will still retain their civil character.

(ii) Kite balloons which have so far belonged to the Army will be taken over by the Army Air Arm of the Regia Aeronautica.

(iii) Airships are allotted to the Naval Air Arm.

(iv) For the purposes of command the Regia Aeronautica will be divided into three Territorial Zones as follows :—

(*a*) The North-west Zone, with headquarters at Milan.
(*b*) The North-east Zone, with headquarters at Bologna.
(*c*) The Southern Zone, including Sicily and Sardinia, with headquarters at Rome.

Concurrently with this Decree another has been passed dealing with the appointment of an Army Chief of General Staff, who is invested with certain broad powers of control over both the Navy and the Air Force. The most important of these provide that he shall " lay down the lines on which the co-operative exercises between the three Services will be carried out and will assume the direction of these exercises."

ROME-MELBOURNE FLIGHT.—Commandante di Pinedo, of whose projected flight to Japan and Australia mention was made in the last number of this Journal, finally left Brindisi on the 23rd April. Alighting at Leros and Alexandretta on the 23rd and 24th respectively he reached Baghdad on the 25th April. Thence, flying *viâ* Bushire, Bunder Abbas, Charbar and Karachi, he arrived at Bombay on the 8th May. Three days later he crossed India from Bombay to Cocanada (province of Madras). This distance is 650 miles as the crow flies and, accomplished entirely over land and on a machine which is sea going only and not amphibian, it may be regarded as a remarkable achievement. Calcutta was reached on the 12th of May, Rangoon on the 18th, Singapore on the 24th, Batavia on the 24th, Kupang (on the island of Timor) on the 29th. Thence the flight was continued on the 31st May across the Timor Sea to Broome in Dampier Land, Australia, and thence round the coast *viâ* Perth to Adelaide and Melbourne, which was reached on the 10th June.

The total distance covered is approximately 14,130 miles and the flight was broken at 31 places *en route*.

Commandante di Pinedo was due to leave Melbourne on about the 1st July, when he will continue his flight to Tokio. There he will change his engine and set out on his return flight to Italy, following the route described in the last number of this Journal. It is worthy of note that the distance which has so far been covered has been done with only one engine, which, with the exception of ordinary running repairs, has not been otherwise overhauled. The engine is a 450 h.p. Lorraine.

ITALIAN VISIT TO ENGLAND.—Two official visits by officers of the Italian Air Force were made to England during June. The first comprises five officers led by Captain Ferrarin, who arrived at Croydon from Brussels on 16th June. These officers came originally from Turin, whence they flew across the Alps to Lyons and then on to Paris. Their flight consisted of four Fiat B.R.1 machines, which is the standard type of day bombing aircraft in the Italian Air Force. The officers remained until Friday, 16th June, when they returned to Paris *en route* for Turin. This is the first occasion on which an Italian Air Force Mission has visited England.

On the 26th June a second visit was paid by another party of Italian officers which included General Prandoni. These officers attended the Royal Air Force Display at Hendon on 27th June, visited No. 56 Squadron at Biggin Hill and Royal Aircraft Establishment, South Farnborough, on Monday the 29th June, R.A.F. base at Calshot on Tuesday, and were shown over Messrs. Napier's works at Acton on Wednesday morning.

RUSSIA.

MOSCOW TO PEKIN FLIGHT.—According to the Russian press, the civil aviation company " Dobrolet " and the Society of Friends of the Red Air Fleet have organised a flight of Soviet aeroplanes from Moscow to Pekin.

The flight is under the direction of the Military Air Force and consists of 5 machines, reported to be two mail Service biplanes with 400 h.p. engines, one mail Service biplane with 240 Siddeley Puma engine (these three machines and the 400 h.p. engines were entirely constructed in Russian workshops) and two Junker's passenger monoplanes with 185 h.p. B.M.W. engines (of the type employed by "Dobrolet" for civil aviation in Russia).

These five machines are accompanied by a passenger monoplane of Russian construction known as A.K.I. with a low powered engine, which is not officially counted in the flight as it is not considered to be able to cope with the mountainous country to be traversed on part of the route, but is to proceed as far as it can.

No limit of time is set to the flight, nor is an attempt to be made to beat records. The time expected to be taken is from one to two months. Its duty is to familiarise the provinces with the idea of the Soviet Air Fleet by means of demonstration flights, lectures, etc., along the route. Stress is laid on the fact that the machines are for the most part of Soviet construction.

The flight from Moscow to Pekin is approximately 7,000 kilometres (4,500 miles). The route to be followed was:

Moscow, Nijni Novgorod, Kazan, Sarapul, Krasnoufimsk, Kurgan, Petropavlovsk, Omsk, Kainsk, Novo-Nikolaevsk, Mariinsk, Krasnoiarsk, Kansk, Nijni-Udinsk, Zima, Irkutsk, across Lake Baikal to Verkne-Udinsk, thence to Urga (the Mongolian capital) and across the Gobi desert to Pekin.

The machines left Moscow on June 10th and, according to press reports, all six machines reached Irkutsk on 25th June without mishap, having accomplished about two-thirds of the journey in 16 days.

The official objects of the expedition are stated to be:

(1) the exploration of an air route to the Far East;
(2) to cement relations between the Soviet union and the brotherly peoples of Mongolia and China;
(3) the training of pilots and a test of Soviet aviation.

UNITED STATES.

HELIOCOPTER TRIALS.—The *Army and Navy Register* reports the test of a new heliocopter early this month. The machine, it is stated, rose into the air about fifteen feet and had a horizontal forward movement of about 35 miles an hour. It is described as being "a marvel of mechanical intricacy" and is alluded to as the descendant of four previous generations of heliocopter design. It was built at great expense by private capital.

AERIAL MAPPING.—U.S. Service Journals report a project to use Naval aircraft for aerial mapping of a mountainous district of California, containing Naval oil shale reserves Nos. 1 and 3. The total area is some 60,000 acres and half of it is 8,000 feet above sea level. The nearest landing ground is 29 miles away over high ridges.

RECORD SEAPLANE FLIGHT.—The naval seaplane P.N.9, built for patrol work, is reported to have made a record non-stop flight for an aircraft of that class when, on 2nd May last, it remained in the air for 28 hours 36 minutes and covered a distance estimated at about 2,500 miles at an average speed of about 80 miles per hour.

P.N.9 has two Packhard engines of over 600 h.p. each. The hull and tail surfaces are constructed of a strong light aluminium alloy.

AIRSHIP NOTES.

GREAT BRITAIN.

REPAIRS TO "R. 33."—The Secretary for Air, in answer to a Parliamentary question, stated recently that it has been found necessary, in repairing "R. 33," practically to re-design the forepart. It is expected that the work will be completed by the middle of September and the airship should be fully inflated and ready for flight three weeks later.

The mooring mast at Pulham should be ready for use by the end of that month.

"R. 36" AND EGYPT.—The mooring tests and flying trials of "R. 36," which are to be carried out in Egypt, will not now take place before the late spring or early summer of 1926. By this time, it is anticipated, the base at Ismailia will be ready and the work of re-conditioning the airship will be completed.

AIRSHIP STATIONS.—Progress is being made with the enlarging of the shed at Cardington, which, when complete, will be 812 ft. long, 180 ft. wide and 156 ft. high. The lifting of the roof members is to be accomplished with the help of a travelling derrick crane which is one of the largest ever erected in the British Isles.

EXPERIMENTAL WORK.—Tests are still in progress with the new type of light construction girder; aerodynamic trials have, however, been held up by the accident to the "R. 33" and will be continued when her bow is rebuilt.

OTHER INVESTIGATIONS.—The Airship Co-ordinating Sub-Committee of the Aeronautical Research Committee has been undertaking a theoretical examination of methods of mast mooring, but has not yet reported.

A technical investigation of the circumstances of the break-away of the "R. 33" is being carried out by the airship staff at Cardington, and the matter will also be reported on by the Airships Co-ordinating Sub-Committee.

MEMORIAL TABLET TO "R. 38."—On 29th June last the American Ambassador unveiled a tablet in the Library of the Royal Aeronautical Society to the memory of the British and Americans who lost their lives in the disaster to the airship "R. 38" ("Z.R. 2") over the Humber on 24th August, 1921.

H.M.A. 38 was originally designed in 1918 for war purposes with the British Navy; but when it was decided to close down all experimenting with airships early in 1921, the half-completed airship was sold to the U.S. Navy, who renamed her "Z.R. 2." She was completed in June, 1921, when she made two trial flights from her constructional shed at Cardington before proceeding to Howden in Yorkshire for final trials prior to acceptance by the American Government.

On her fourth and last flight she was manned by a mixed crew of Royal Air Force and U.S. Navy officers and men, and also carried civilian representatives of the design staff and of the research staff at the National Physical Laboratory. At 5.37 p.m. on 24th August she broke her back while carrying out rudder tests and fell into the Humber in two portions, only four of the occupants being saved. Among those who lost their lives were Air Commodore E. M. Maitland, Flight-Lieutenant J. E. M. Pritchard, Flight-Lieutenant Thomas, Mr. C. I. R. Campbell (Chief Designer), Mr. J. R. Pannell and Mr. C. W. Duffield (of the National Physical Laboratory), and Commander L. A. H. Maxfield, Lieut.-Commander W. N. Bieg and Lieut.-Commander E. W. Coil, of the United States Navy.

"R. 38" MEMORIAL PRIZE.—In raising a fund to commemorate those who

lost their lives in "R. 38," the Council of the Royal Aeronautical Society had a dual purpose: to provide the Memorial Tablet and also to establish an annual prize for the best technical paper on airships received by the Council. This prize has been awarded since 1923, and has resulted in the publication of papers of a high standard.

UNITED STATES.

AIRSHIP AND BATTLESHIP EXERCISES.—The naval airship "Shenandoah" and the battleship "Texas" have been ordered to carry out exercises together with a view to testing the best means of using lighter-than-air craft in conjunction with the fleet and for sea work generally. The exercises will include:—

(*a*) Communication tests.

(*b*) Tests to determine the visibility of large airships from surface ships and *vice versa*, under various conditions of light and weather.

(*c*) Tactical manœuvres to determine the nature and position of the defensive armaments to be carried by naval airships.

(*d*) The patrol of sea areas and reconnaissance work generally.

The "Shenandoah" is working from the airship base at Lakehurst or from the depôt ship "Patoka" which, with the "Texas," is using Narragansett Bay as a base. The Captain of the battleship has been placed in charge of the exercises.

"LOS ANGELES" FLIGHTS.—On 21st April the "Los Angeles" made a flight to Bermuda, and was moored to the airship tender, U.S.S. "Patoka." A crew of 55 and ten bags of mail were carried.

On 4th May this airship, with a crew of 37 and 200 lbs. of mail, left Lakehurst for Porto Rico. After a flight of 33 hours, Mayagnez harbour was reached and a mooring made to the "Patoka." On the return journey, Lakehurst was made on the 10th May. As the water ballast had been dropped to lighten her during a storm, some difficulty was experienced in landing, and a considerable amount of helium had to be liberated before she could be moored.

NEW ENGINES FOR "SHENANDOAH."—It is officially announced that the naval airship "Shenandoah" is to be re-engined, the existing five 300-h.p. Packhard engines being replaced by three 700 h.p. ones of the same make. It is anticipated that the change will not only give increased horse-power, but will considerably reduce the weight of machinery and give an increase of 25 per cent. to the airship's radius of action.

CHEAPER AND BETTER HELIUM.—Developments in the production of helium in the United States, if they come up to expectations, may have far-reaching results in advancing the progress of airships in that country.

It is claimed that by a process of repurification, helium can be given equal or even better lifting qualities than hydrogen and will eventually cost less.

The Navy already has a large repurification plant at Lakehurst, and a mobile plant is being completed. Increased production has reduced the cost of obtaining helium from the ground to about $30 per 1,000 cubic ft. It is stated that after one process of repurification, the gas can be used again at a cost of 2,000 cubic ft. for $31·50; and after a second process 3,000 ft. will only cost $33, or $11 per 1,000.

Hydrogen already costs $15 per 1,000 cubic ft., and is difficult to keep pure.

At present, the United States is the only country which produces helium in useful quantities. It is hoped, ere long, to have enough to supply both the Navy's and the Army's airships and all kite balloons. It is also anticipated that the general adoption of helium will so increase the safety of lighter-than-air craft that their commercial development will be assured.

REVIEWS OF BOOKS.

Paris, or the Future of War. By CAPTAIN B. H. LIDDELL HART. (Kegan Paul, Trench, Trübner and Co., Ltd.)

This very live and readable little book can be strongly recommended to all students of war, not as a text-book for guidance, but as a mental tonic to stimulate the imagination.

At the outset the author reminds us that the pathetic delusion of the "war to end war" is a recurring feature in history. A kind of "international Coué-ism" with which idealists have tried to mesmerise humanity after the Great War is proving, as ever, an ineffectual cure for a deep-rooted disease. It is the course of this "disease" and the possibilities of limiting its ravages that he sets out to review.

The "military practitioners," brought up in the Napoleonic school, come in for severe criticism. It is argued that their treatment of the recent Great Scourge was so ineffectual that it took four years to cure the malady, during which time this country alone was bled of three-quarters of a million lives and ten thousand million pounds, while the physical standard of humanity became so lowered that an influenza epidemic in 1918–19 took toll of the civilian population to a number amounting to double the losses of the war.

Such warfare by "mass destruction," Captain Liddell Hart maintains, was the outcome of military doctrines which Napoleon inspired and Clausewitz "analysed, codified and deified." This great German exponent of war enumerated its three general objectives in the order—the military power, the country and the will of the enemy; but the author argues that military history throughout the ages has demonstrated that Clausewitz made a vital mistake in not placing the last objective first. He reminds us that Hannibal, in his obsession for "the armed forces of the enemy" secured brilliant victories, but not only failed to gain Rome but lost Carthage. Scipio, with truer strategical vision, struck at the moral of the enemy citizens and in so doing started the subjugation of their will which paved the way to victory.

Napoleon, like Hannibal, followed a false objective, and in so doing brought about his own downfall. His dramatic victories in February and March, 1814, led him to overreach himself, and, still pursuing the enemy's forces, he left Paris, the nerve centre, uncovered. It fell and with it the whole might of France. A hundred years later, the author suggests, the issue of the late war might have been very different had the German Higher Command concentrated on Paris, instead of being "obsessed with the dream of a Cannæ manœuvre" and attempting to surround the French Armies.

We are not told very clearly how the Allies, with existing weapons, could have imposed their will on the Central Powers other than by the prolonged military operations and the economic pressure exerted by the Navy; but we are left to infer that the war could have been ended sooner if we had developed aircraft and tanks more quickly and given them freer scope to operate behind the enemy's lines.

The introduction of these new weapons would seem to give added force to the author's arguments, which are largely based on the doctrines advanced by Colonel Fuller in "Reformation of War," by Haldane in "Callinicus" and by Lefebure in "The Riddle of the Rhine;" but, while admitting the desirability of giving

free play to the imagination when trying to visualise " the future of war," it is as well to be cautious how we discard, or ignore the influence of, the old, well-tried weapons. One of the outstanding lessons of the late war was the value of old weapons in old situations. He would be a bold man indeed who would say that the new weapons will entirely preclude those " old situations " from recurring.

So when we find this able protagonist of the new forms of warfare hinting at the issue being decided in future by non-lethal gas precipitated from the air on governments, nerve-centres and the civil population—a merciful form of warfare, permitting speedy economic recovery for victor and vanquished alike—it is necessary to restrain one's imagination and recall solid facts, which have yet to be proved out of date. War has never yet been waged successfully " in kid gloves." Clausewitz's dictum, criticised early in this work, that " blood is the price of victory " was not merely the dogmatic assertion of the militarist but proclaimed a fundamental condition of crude humanity at war, and war, in spite of all attempts to civilise it, seems likely to remain a crude business.

The Truth about Kitchener. By V. W. Germains. (The Bodley Head.)

Mr. Germains' book has many striking merits, not the least of which is that it presents itself as a model of clarity and proportion. The writer relies for his " case " on documents which have been for the most part freely published, and on events which are—or ought to be—generally known; he has denied himself—or has been denied—access to any special area of information; except on one occasion, he quotes from no private letters; he repeats no private conversation; no Cabinet secrets have been revealed to him, and no military authorities have confided in him. But he moves about among his facts and figures with ease and accuracy, he has acquired a strong grasp of his subject and in a little over 300 pages he succeeds, by the exercise of sheer common sense, in pulling down for all time turrets of uninformed criticism and in building up a little temple of simple truth.

The writer has evidently been exhaustive in enquiry, and he is particular in detail. The cumulative effect of his details is to exhibit anew the greatness of a great Englishman, his length and breadth of vision, his prophetic intelligence, his systematic organisation, his accuracy in administration—the accuracy of a man who sees things as in a plan rather than in a picture—his carelessness of himself, his carefulness for everything else, his confidence that the war would be won by the last million of English-speaking men put into the field, and his fear that the victory reaped by the soldiers might be robbed of much of its fruit by the politicians.

Here and there Mr. Germains may seem to be pushing at an open door; published papers and official reports have long since condemned such silly calumny as that Lord Kitchener " refused " to provide high explosives for our guns or gave to Gallipoli what was due to France.

But the figures which Mr. Germains prints not only testify as to the amazing output of munitions by the War Office, but prove, once and for all, that before the Ministry of Munitions could be formed—let alone get into the saddle—the path had been cleared and the machinery prepared for the splendid efforts which that Ministry was to make until the end of the war. One further point Mr. Germains might usefully have emphasised. The Ministry of Munitions was set up during the first week of June, 1915. It was not until seventeen months later that a single component of ammunition worth speaking of was delivered from its factories or orders and not until April, 1916, that the first complete round, made and filled under the provision of the Ministry, was delivered to the Army authorities.

Mr. Germains has clear views about Lord Kitchener's refusal to base his scheme

to place armies in the field on the existing Territorial system; he does not overstate his case in mentioning that up to the end of August, 1914, only seventy battalions of Territorials had volunteered for service overseas out of a total of one hundred and ninety-four; he perhaps understates it in saying that in answer to an enquiry circulated before the war as to Territorials willing to undertake liability for foreign service less than 10 per cent. of the nominal establishment seemed prepared to give this undertaking.

The Commanders-in-Chief of the British and French Armies have set on paper that, without Lord Kitchener's enterprise, Germany must have won the war. Mr. Germains now adds the testimony of an enemy expert. "Lord Kitchener," writes General Ludendorff, "has not yet received the appreciation due to him if we are to perceive the great historical events in clear perspective. He created armies out of next to nothing, trained and equipped them. Through his genius alone England developed side by side with France into an opponent capable of meeting Germany on even terms, whereby the position on the front in France in 1915 was so seriously changed to Germany's disadvantage. His great organising powers alone would have sufficed to render Lord Kitchener one of the most important of the military personalities of the World War, perhaps the most distinguished England ever had."

Mr. Germains' volume serves even more than its purpose if it recalls the rock fact that eleven years ago easy going England was transformed by swift master strokes into nothing less than the dominant military Power of the world; in page after page he shows that one man, and one man only, pronounced that vast transformation to be vitally necessary and, to his country's undying honour, proved it to be perfectly possible.

Within a few months memorials to Lord Kitchener in St. Paul's Cathedral and on the Horse Guards Parade will be in the public eye; the great armies which he raised in the hour of utter need are his no less imperishable memorial, and surely no nobler monument has been raised to man.

Commanding an American Army. (Recollections of the World War.) By HUNTER LIGGETT. (Houghton Mifflin Company, 1925.)

The author commanded the 1st American Army Corps and later the 1st American Army during the final stages of the Great War.

The book is interesting as it brings home to English readers the value of the assistance rendered by the American Expeditionary Force. Thus in the first great action of the Allied offensive, 18th July to 4th August, no less than 200,000 Americans took part and by their fighting capacity gave their opponents an unpleasant surprise. The first wholly American operation was the obliteration of the St. Mihiel salient, which was successfully undertaken at no great expense by the 1st American Army. In the battle of the Argonne, one of the most decisive battles of the war, the 1st and 2nd American Armies took part, acting directly under American G.H.Q. The enemy, realising the danger of a thrust towards the railway at Montmédy, concentrated very large forces in this area in positions that had hitherto been deemed impregnable. He was, however, thrown roughly out of them and across the Meuse, though at the cost to the Americans of very heavy losses. In this campaign General Liggett's army—the 1st—contained nearly 900,000 Americans and suffered 117,000 casualties. Before advancing on the Meuse it had to change front through 90°—always a very difficult operation both from the fighting and supply point of view—and that it did so successfully reflects great credit on the command and staff of the Army.

The author writes simply and modestly of great doings. At one point he touches humour. In the Marne battle his Chief of Artillery always managed to festoon his heavy guns round Corps H.Q. "This served the double purpose of enabling us to observe the perfection of method in the Corps Artillery and also inured us all to hostile shelling, of which we received a liberal dose at each successive Headquarters."

A good example of the assistance that can be rendered by civilian organisations in the mechanics of war, is furnished by the signal battalion formed out of the "Beil" Telephone Company. "Never were line troops better served . . When it was humanly possible to have communication, we had it in as nearly perfect form as could be imagined."

The remarks of a distinguished American upon certain vexed questions have a considerable value. He considers bombing of towns, bridges, etc., of little material effect and only morally effective if constantly repeated. He is much more in favour of bombing operations against enemy troops in close *liaison* with his own troops. He thinks that tanks are an auxiliary arm to infantry and should never be employed independently of them. Of his own troops he says: "They were young, enthusiastic, self-reliant, full of courage . . . and they imposed upon themselves a discipline which was remarkable, and all the more reliable because created by knowledge of its necessity." But he bemoans their lack of training and the severe losses it entailed, adding: "The enforced direction of untrained . . . soldiers in battle . . . is a frightful thing to contemplate. This responsibility our officers were forced to carry." Of commanders he points out that all in the higher ranks were trained soldiers and he lays stress on the great importance of their mental training.

Robert E. Lee, the Soldier. By MAJOR-GENERAL SIR F. MAURICE, K.C.M.G., L.C.B. (Constable & Co., Ltd.)

Many readers of Henderson's classic work on Stonewall Jackson have felt the need of a companion volume on Jackson's chief, for in Henderson's story the subordinate naturally holds the central position, while Lee only occupies a secondary place. Moreover, the book closes with Jackson's death at Chancellorville, and up to that point Lee had been fighting victoriously against heavy odds; the quality of his troops was relatively high; while the opposing leadership was mediocre. After Jackson's disappearance Lee was destined to fight still against heavy odds, no longer as a victor, but with his own numbers growing relatively weaker and equipment less adequate, henceforth to be pitted against a leader of the highest calibre. Here it was that he set the seal upon an enduring fame. Lastly, Lee is unquestionably one of the greatest soldiers and one of the finest characters in Anglo-Saxon history. The book under review, therefore, especially as being the fruit of long study on the part of a convincing and attractive writer, well-versed in military affairs, is more than welcome.

The actual operations are treated on broad lines, and all tactical detail is omitted. This method is particularly suitable, as Lee himself has stated that his practice was to bring up his troops in the best way and in the best condition he could, and then to commit them to God and his subordinates. The author, in addition, slurs over no faults of leadership where he deems them to have occurred. He blames Lee for his lack of control of Longstreet, for the failure at Malvern Hill, for the decision to fight at Sharpsburg and for the vagueness of his instructions to Stuart prior to Gettysburg. Most of Lee's other movements he considers not only sound but inspired by a high degree of military genius. And there certainly was genius in the operations that drove McClellan far back from the gates of

Richmond, and again in the presentation of a continual foil to Grant's strong and skilful thrusts. But were the two advances into Maryland as sound as the author would have us believe? The one ended in failure on the Antietam and the other in defeat at Gettysburg. In neither case was there a real military objective; while in both cases a superior hostile force was left threatening Lee's own communications. On the road to the Gettysburg fighting the three portions of the army were strung out 25 miles apart, Hill's Corps indeed being left in danger of actual destruction.

After the second Manassas, so Maurice says, Lee rightly decided not to knock his head up against the fortifications of Washington. Yet a move on that capital might have driven home the lesson of victory: the Northern Government would probably have fled; McClellan might have withdrawn rather than allow his army to be penned up in a fortress. The military and political ends would thereby have been attained more efficiently and with less danger. Maurice also argues that Hill, left alone opposite Hooker, could, if attacked, have retired to the North Anna. But can a force retire so easily when attacked by an army three times its strength? Is it not in grave danger? Lincoln's contention that if Lee's army had its head at Martinsburg and the rest about Chancellorsville, the animal must be very slim somewhere, summed up the situation well. True the stalemate on the Rappahannock could not continue, since time favoured the Federals. To end it, Lee was justified in taking great risks; he should, however, have endeavoured to beat Hooker before moving into Maryland.

There are a few minor faults in the editing of the book: the map of the States should have been inserted parallel to the text and so as to unfold clear of it; the sketches on p. 194 should show the railway running through Fredericksburg to Richmond; there is a misquotation of " where," for " how " on p. 64 and a mistake of " east " for " west " on p. 123. The real fault of the book, nevertheless, remains its brevity; for it is replete with interest from beginning to end. It rightly places Robert Lee among the greatest soldiers of all time, and we have to thank the author for having portrayed his character and described his operations in such admirable fashion.

Waziristan, 1919–20. By LIEUT.-COLONEL H. DE WATTEVILLE, C.B.E., B.A.(Oxon), *p.s.c.* (Constable & Co., Ltd.)

The annals of the North-West Frontier of India are rich in the record of desperate fighting. The bravest and most skilful of the savage warriors of the world inhabit that region; and, of all the tribes, the Mahsuds and Wazirs, more especially the former, stand out as the most daring, the most truculent and the most bloodthirsty. A large percentage were armed with modern rifles and there is a number of ex-soldiers of the Indian Army in their ranks thoroughly conversant with British methods.

It was against such redoubtable opponents that we were unwillingly forced to war in 1919. The problem would have been difficult at any time but at the close of the 3rd Afghan War our resources in trained soldiers in India were at an end and all the disorganisation and disintegration that is the aftermath of war was at its height. It is not surprising to read, therefore, that the fighting was peculiarly heavy and that for a long period the issue between defeat and victory hung upon a hair. Fine leadership eventually won through. But we may well shudder at the results that serious defeat would have had on our prestige in a country where prestige is all-important. And we shall do well to take to heart the lesson that no circumstances can justify the depletion beyond safe limits of the trained soldiers necessary for the policing of our Empire.

Colonel de Watteville has given a clear account of the campaign, and his comments thereon are sound and apposite. For purposes of comparison he has very sensibly added a chapter on the operations which led to the occupation of Ragmak in 1923, which were conducted under conditions far more favourable, except climatically, than those which obtained in 1919—well-trained troops, more and better guns, more and better aeroplanes—and were wholly successful. His chapter on "Aircraft in frontier warfare" should be carefully read, for it deals very thoroughly with the capabilities and limitations of aeroplanes in mountainous country.

The book is well written and well-edited except that a larger map of the main theatre of operations is much needed. It belongs to that well-known series "Campaigns and their Lessons" which Sir Charles Callwell originated many years ago with a volume on the other great campaign on the Indian frontier: "Tirah, 1897."

Changes and Chances of a Soldier's Life. By MAJOR-GENERAL SIR EDWARD S. MAY, K.C.B., C.M.G. (Philip Allan & Co.)

There are some good chapters in this book, and several entertaining anecdotes. Sir Edward May is a true regimental officer, devoted to his guns and to his colleagues. It is, therefore, not surprising that the earlier pages dealing with the daily life of the artillery of a generation ago should be well worth reading. All readers will be delighted with the portraits which Sir Edward is able to present of such striking personalities as Major W—, Colonel "Snipy" G— and, above all, of that remarkable character "Treasure" Dalbiac. They could only have existed in those days when the command of a battery of Artillery meant something very different to what it does now. In talking of his early days Sir Edward lets himself go with advantage.

The chapter dealing with the siege of Ladysmith is thoroughly interesting from both the historical and personal point of view. The author's admiration for Sir George White is unbounded and deserved; his aversion to Sir Redvers Buller is not to be concealed. Others who knew Buller in more fortunate circumstances take a different view of that leader, but it must be confessed that Sir Edward, on pages 249–251, puts forward some weighty and convincing arguments against Buller's capacity and renown as a leader in the South African Campaign, whatever else he may have done before.

Sir Evelyn Wood figures freely in these later pages; so does Lord Wolseley, though to a lesser degree. The concluding chapters seem to fall off, but this is inevitable.

There is one fault in this book. It is too long, far too long indeed to attract the lay reader, at any rate. Much of the minor personal detail—excepting the well told story of the author's shooting trip to Kashmir when a young subaltern—would stand excision without detracting from the interest to be derived from the volume as a whole; the author, being Irish and having several good stories to tell, would not have suffered by pruning his narrative. One would like to enquire of Sir Edward whether he really imagines that "a quarter of a century" elapsed between Ladysmith and Mons?

Guns, Gunners, and Others. By SIR DESMOND O'CALLAGHAN, K.C.V.O. (Chapman & Hall.)

A pleasant book, altogether characteristic of the author, a Garrison gunner to the core, devoted to his guns, thorough in his work, resourceful in moments of difficulty, and ever itching to get a bit of fishing or a day's sport. Without ever

having known active service, Sir Desmond has been able to string together an entertaining series of anecdotes and experiences. His description of the Ordnance School at Carshalton is particularly good. As the record of such a life, these memoirs should appeal strongly to those who have known any of the surroundings and personalities among which and with whom the author has served. The easy style of the narrative and anecdotes contained in the book are quite attractive. The general lay public, however, may not possess the necessary familiarity with military life to appreciate the book as it deserves. The pages are unduly interlarded with foreign quotations. These require using with considerable restraint and skill at all times or they tend to spoil the fluidity of any narrative.

Soldiers and Others I have Known. By MAJOR-GENERAL SIR JOHN ADYE, K.C.M.G., C.B. (Herbert Jenkins, Ltd.)

Sir John Adye's career covers the entire period which may be described as the transition from the military methods of the post-Crimean age to those of the Great War. Having acted as A.D.C. to Lord Wolseley the writer is able to invest his earlier story with considerable interest. His later chapters, dealing first with the South African War and then with the preparation of the British Army for the Great War, also give an adequate presentation of those years of military activity. But the pages devoted to the Great War are disappointing. The writer either does not desire to divulge what he knows, or he stood too far from the centre of activity to have carried away those vividimpressions which some of his colleagues have been able to reproduce. There is, moreover, an atmosphere of restraint, even a savour of official memoranda, which mars a narrative otherwise not without merit and replete with possibilities; a little more vitality and a few more indiscretions would have made this book more readable. Memoirs of this type require a certain garrulity to make them a success. True, there is one exception: the Duke of Teck, Sir John tells us, during the Tel-el-Kebir campaign "went through the discomfort of several very hot days in the desert in August with great stoicism." For the rest, it just remains a pleasant, precisely-written record of a highly successful yet in no wise remarkable career.

Military Geography of the British Commonwealth. By MAJOR A. E. W. SALT. (Gale & Polden, Ltd.)

There is a mass of information contained in this book. Unfortunately, however, the spacing is not well balanced, too much space being devoted, for instance, to detailed descriptions of Indian railways which can be seen on a map, and of air routes yet in their infancy, while too little attention is paid to such important matters as the development of the British Commonwealth. The main fault of the book, however, is a lack of accuracy such that it must greatly impair its value for reference purposes. Wherever a test be applied, whether it be to the number of ships in commission (p. 341), organisation, distances or heights, the figures are very often inaccurate, if not misleading. The distance from Gibraltar to Africa is given as 25 miles, instead of 15, and the height of the Malakand pass as 8,240, instead of 3,000 feet. Lithuania is said to lie North of the Niemen, whereas the Niemen runs through a great portion of that country. And as to maps!—that of the N.W. Frontier of India gives a very false idea of communications in that area; on that opposite p. 158, a distance is marked at 445 miles which measures over 900 miles by the scale; and that opposite p. 341 shows a railway from Baghdad through Mosul to Konia, which is not yet completed. These inaccuracies permeate the

book. Perhaps the worst example is to be found on p. 348 :—" The Commands each contain a number of divisions and independent brigades . . . .

" The British regular troops are organised into brigades and divisions with the Indian army, the normal proportion being 3 British battalions to 1 native. The Horse, Field and Garrison Artillery, the Royal Tank Corps and the Royal Air Force are wholly British."

These few lines contain the following mistakes :—

(1) Commands contain districts, not divisions.
(2) The normal proportion is 1 British battalion to 3 native.
(3) The Horse, Field and Garrison Artillery have been amalgamated ; and
(4) Contain more Indian ranks in their establishment than do the whole of the Indian Cavalry.

A number of isolated questions and situations are well treated in the text, but their implications and their relations with other problems of the Commonwealth are not always clearly indicated. To make use of this good matter the book should be not only revised with expert assistance, but wholly re-written. As it stands it can only lead the student into error.

Aerial Surveying by Rapid Methods. By B. M. JONES, A.F.C., M.A., and MAJOR J. C. GRIFFITHS. Cambridge. (University Press.)

The commencement of the late war found aerial photography in its infancy. As the war progressed, this branch of photography naturally developed, aerial survey being not the least important of the branches.

Professor Jones, realising the danger of allowing research to lapse in the anti-climax following a great war, and with a view to applying the knowledge acquired on service to peace conditions, made a thorough examination of the subject from one or two particular viewpoints.

The importantce of the work which he has undertaken may be gauged from the fact that he was given official assistance by the Air Ministry and the Air Survey Committee.

The two methods of survey mainly discussed are the compilation of a comparatively accurate map from a photographic mosaic, with or without control points, and the construction of a reconnaissance map by the combination of navigational control and oblique photographs, as a preliminary to further more accurate ground or aerial survey. In this connection an interesting point is raised, namely the desirability of fixing ground control points astronomically, after the preliminary air survey. The control points can thus be fixed where desired, and are not, as in a triangulation, governed by the necessity for inter-visibility.

As is natural, when approaching the problems from the standpoint of peace, surveying considerations of economy are given a prominent position. In discussing the compilation of a mosaic, stress is laid on the importance of leaving no gaps between successive overlap runs, to avoid repetition flights. On service, such considerations must go to the wall, unless air superiority and immunity from ground action is established.

The book should prove of equal interest to those studying the problem both in peace and war. It is interesting to note that the F.8 camera, which is gradually replacing the L.B. camera for general use in the Royal Air Force, fulfils many of the requirements mentioned as requisite in the camera designed for aerial surveying.

The subject matter is peculiarly interesting at the present time in view of the recent aerial survey of the Malay Peninsula, using the F. 8 camera, the aerial survey

of a portion of Burma, and the proposed experimental revision of the Ordnance Survey maps on the south coast by aerial methods.

The book does not "claim to be a complete exposition of the problem," but nevertheless forms a sound basis for further research.

In addition, there are several valuable appendices, which should prove of interest to the mathematically inclined.

REGIMENTAL HISTORIES.

The History of the King's Shropshire Light Infantry in the Great War, 1914-1918. Edited by MAJOR W. DE B. WOOD. (The Medici Society, Ltd.)

There is at any rate one very specially interesting feature about this regimental war history, and that is the extraordinarily cheap terms on which the committee has been able to produce it; the list of subscribers published at the end of the book is certainly a long one, but the Regiment is to be cordially congratulated on being able to produce a War History of all its battalions under one cover at the really remarkably low price of five shillings.

During the war the establishment of the King's Shropshire Light Infantry was raised to thirteen battalions, of which eight served overseas, while the remaining five took part in the defence of the homeland and supplied drafts of officers and men for the reinforcement of the battalions at the front. The eight battalions which proceeded abroad all saw service in France, while three of them had experience of fighting in other and more distant theatres of war, such as Palestine and Salonica; but the 4th Battalion may claim to have seen more of the world than did any of the others, since prior to its final arrival on the Western Front in June, 1917, it had visited India, Burmah, Singapore, Hong Kong, Ceylon and Cape Town, finally arriving in England after an absence of two years and a half, and then re-embarking for France within forty-eight hours of its return home. The general plan of this history—that of recording the services of each battalion separately—has certain obvious disadvantages, but on the whole it is unquestionably the one which appeals most strongly to the individual soldier, since he is thereby able to follow easily and unhindered the story of the battalion in which he is more particularly interested or concerned; and the method sometimes employed of telling the story of the whole regiment chronologically, resulting in the presentment of the battalion fragments after the mixed methods of an American magazine, is certainly not that favoured by those readers for whom regimental war histories are chiefly provided.

The services of the different battalions in the war appear to be almost exclusively drawn from the official diaries—the compiler admits regretfully that other sources of information, private letters, individual diaries and the recollections of survivors, have proved very scanty: so that the record lacks the personal touch which means so very much to those who recall the scenes they took part in and the great events in which they shared. The first battalion record suffers in this respect perhaps more than any other, and a very fine war record is consequently somewhat dimmed. In the case of the seventh Battalion, on the other hand, with which unit the compiler himself served, the story is lightened by many good stories which have been preserved of days of training in England and of service at the front: two are especially good and must here be quoted. That of the recruit who was checked by a sergeant for failing to salute the adjutant and who indignantly replied: "Why, I 'ardly knows 'im!" And that again of the battalion grouser who observed of the long

marches up to and from the front-line trenches carrying up rations and other supplies: "It aint the war I complains of—it's the way up to it!"

Something might perhaps have been said as to the causes of the War, and also as to the situation when battalions reached the front in France or elsewhere, and the reasons for the operations in which they found themselves engaged; but in a regimental war history the conditions of space are very exacting, and the great thing is to produce a history at the smallest possible cost, as soon as may be—while men have not begun to forget—and one which faithfully records what all men and all battalions did for the good name of the Regiment. Such a book the History Committee of the King's Shropshire Light Infantry have certainly succeeded in providing.

The Border Regiment in the Great War. By COLONEL H. C. WYLLY, C.B. (Gale and Polden.)

The compilation of a history of a British infantry regiment during the Great War always provides an exercise in the art of compression: it is hardly ever possible to present a full-length record of each battalion. In the case of the Border Regiment, Colonel Wylly has been faced with more than usual difficulties, since the task must entail the description of operations in not less than six theatres of war. The 1st Battalion served throughout the Gallipoli campaign before moving to France; the 2nd Battalion, in the 7th Division, was at the Battle of Ypres, 1914, and finished the war on the Italian Front; the 4th and 2nd/4th helped to garrison India; the 5th, 7th, 8th and 11th were on the Western Front throughout their fighting existence; the 6th served in Gallipoli and France; and the 9th Battalion had experience of both France and the Balkans.

Nevertheless, Colonel Wylly provides a clear and concise account of every operation in which the Border Regiment was represented, and even finds room in his well-planned volume to record the activities of the Depôt, and the post-war services of the 2nd/4th Battalion and 1st Battalion on the Indian frontier. He is most particular to outline the general scope of each campaign or great offensive; to give a list of the officers who embarked with each battalion and who were present at every action in which it took part, and to note strengths and casualties. There are many excellent illustrations of life on the Western Front, and several coloured maps of a general nature. The index is good.

The War History of the 6th Bn. The South Staffordshire Regiment. By a COMMITTEE OF OFFICERS. (William Heinemann, Ltd.)

For the most part, this is a war record of one battalion only. Nevertheless, it very properly includes the story of the 2nd/6th Battalion which proceeded to France in February, 1917, having undergone a baptism of fire during the Easter rebellion of the previous year in Ireland.

On the outbreak of war, the 6th South Staffordshire was already an old-established battalion, and, as was the case with the greater part of the Territorial Force, was undergoing its annual summer training. In February, 1915, it sailed for France, reaching the Western Front just before the commencement of the Battle of Neuve Chapelle. Then, after taking part in most of the fighting in the salient, at the beginning of 1916, it was hurriedly sent to Egypt, to be as hurriedly returned to France, where it fought on and saw the war out.

The Committee of Officers who put together this history deserve the gratitude of their battalion, regiment and county; they have also been most fortunate in

the material at their disposal—letters, diaries and other documents have been plentiful and well employed. This record is probably exactly what those who served in the war with the Battalion would wish it to be. The story is pleasantly told, with abundant recognition of many humorous episodes, and with profound reverence for the sacrifices so cheerfully and whole-heartedly made by the many who in various ranks served in the 1st/6th and 2nd/6th battalions of the South Staffordshire Regiment.

The First Battalion "Faugh-a-Ballaghs" in the Great War. By Brigadier-General A. R. Burrowes, C.M.G., D.S.O. (late Royal Irish Fusiliers). (Gale & Polden, Ltd.).

Brigadier-General A. R. Burrowes, C.M.G., D.S.O., has elected to tell the story of the 1st Battn. Royal Irish Fusiliers in the form of lively sketches of its part in the great campaign. This is probably the form of greatest interest regimentally and, despite the modest disclaimers in his preface, it is very excellently done. The practice of collecting all messages and orders and sending them into safe custody every week was a most laudable one, and must have been of immense assistance in reconstructing many a tactical incident. Would that every unit had followed it!

At the same time, those readers who have not been "Faugh-a-Ballagh Boys" themselves will feel a tinge of regret that some of the particularly gallant and vital actions of the 1st Battalion are not described a little more fully. One can feel every sympathy with Brig.-General Burrowes in his anxiety to produce a meticulously accurate account of the deeds of his Battalion and to avoid hyperbole, but it almost savours of injustice to a gallant regiment to treat crucial actions with such modesty and restraint as are exhibited in this record. However, such a drawback is almost inseparable from the "Diary" method of treatment; War Diaries are written too close to the event to admit of perspective.

The 87th was ever at its best in a tight corner and, for the sake of recruits yet unborn, the story of its "Tight Corners" in the Great War—and they were not a few—should be perpetuated, so as to stir the hearts of a new generation in the days when the survivors shall be silent for ever. An epic such as the last stand of the 1st Battalion at Andechy on 26th March, 1918, deserves to live for always. Whatever difference of opinion there may be about the conduct of the battle as a whole, there can be none about the devotion of the officers and men who gave their all in that splendid effort to gain time; then, as ever, the 87th was game to the finish.

The domestic life of the Battalion is well recorded and the Irishman's love of humour, horseflesh and sport is brought out in many an aside; as a puzzled French interpreter remarked " . . . You laugh always, and all you want is bully-beef!" There are few better tributes to Regimental Spirit.

Although nominally a history of the 1st Battalion in the Great War, the record is carried on to November, 1922, when the 1st and 2nd Battalions were amalgamated on the reduction of the Irish Regiments, consequent upon the establishment of the Irish Free State. Thanks to this fact, the reader has the opportunity of following the 1st Battalion through the Arab rising in Irak in the autumn of 1920, of which an entertaining sketch is provided.

The book is well produced and the illustrations are appropriate, but the map of the Western Front might, with advantage, have been made to a little larger scale. To the usual appendices is added a comprehensive list of the special stores used in trench warfare—it will be most useful information for future historians!

PRINCIPAL ADDITIONS TO THE LIBRARY.

May–June, 1925.

LOOKING BACK. By Captain. Hon. Sir S. Fortescue, K.C.V.O., C.M.G., R.N. 8vo. London, 1920.

THE MAD MULLAH OF SOMALILAND. By D. Jardine, O.B.E. 8vo. London, 1923.

THE NEW BALTIC STATES AND THEIR FUTURE. By O. Rutter, F.R.G.S., F.R.A.I. 15s. 8vo. London, 1925.

AERIAL SURVEYING BY RAPID METHODS. By B. M. Jones, A.F.C., M.A., and Major J. C. Griffiths. 16s. 8vo. (University Press.) Cambridge, 1925. (Presented by the Syndics of the Cambridge University Press.)

WITH LAURENCE IN ARABIA. By L. Thomas. 21s. 8vo. London, 1925.

CHANGES AND CHANCES OF A SOLDIER'S LIFE. By Major-General Sir E. S. May, K.C.B., C.M.G. 21s. 8vo. (P. Allan & Co.) London, 1925. (Presented by the Author.)

WILLIAM AUGUSTUS DUKE OF CUMBERLAND AND THE SEVEN YEARS' WAR. By the Hon. E. Charteris, K.C. 21s. 8vo. London, 1925.

PARIS, THE FUTURE OF WAR. By Captain B. H. Liddell Hart. 2s. 6d. 8vo. Kegan Paul, Trench, Trübner & Co., Ltd.) London, 1925. (Presented by the Publishers.)

GREAT BRITAIN AND THE AMERICAN CIVIL WAR. By E. D. Adams. 30s. 2 vols. 8vo. London, 1925.

MEN, WHOSE FATHERS WERE MEN: A STORY OF A HOBBY. By "Centurion." 8vo. (A. H. Baldwin and Sons, Ltd.) London, 1925. (Presented by the Publishers.)

RECORDS OF THE CLAN CAMPBELL IN THE MILITARY SERVICE OF THE HONOURABLE EAST INDIA COMPANY, 1600–1858. Compiled by Major Sir Duncan Campbell of Barcaldine, Bt., C.V.O., F.S.A.Scot., F.R.G.S. 12s. 6d. 8vo. (Longmans, Green & Co.) London, 1925. (Presented by the Publishers.)

GUNS, GUNNERS, AND OTHERS. By Major-General Sir D. O'Callaghan, K.C.V.O. Illustrations. 15s. 8vo. (Chapman and Hall.) London, 1925. (Presented by the Author.)

ADVENTURES ON THE WESTERN FRONT, AUGUST, 1914–JUNE, 1915. By Lieut.-Colonel A. Rawlinson, C.M.G., C.B.E., D.S.O. 21s. 8vo. London, 1925.

THE COLLAPSE OF CENTRAL EUROPE. By K. F. Nowak. 15s. 8vo. London, 1924.

POLITICS FROM WITHIN, 1911–1918. By the Right Hon. C. Addison, M.D. 36s. 2 vols. 8vo. London, 1924.

DIALOGUES SUR LE COMMANDEMENT. Par A. Maurois. 8vo. Paris, 1925.

SOLDIERS AND OTHERS I HAVE KNOWN. By Major-General Sir J. Adye, K.C.M.G., C.B. 15s. 8vo. (Herbert Jenkins, Ltd.) 1925. (Presented by the Author.)

THE TRUTH ABOUT KITCHENER. By V. W. Germains. 8s. 6d. 8vo. (John Lane, The Bodley Head, Ltd.) London, 1925. (Presented by the Publishers.)

THE HAKLUYT SOCIETY.

THE JOURNAL OF WILLIAM LOCKERBY. Series II., Vol. LII. 8vo. London, 1925.

THE SPRIG OF SHILLELAGH: Journal of the R. Inniskilling Fusiliers. Vols. XVI. and XVII. (Presented by the Editor.)

WAZIRISTAN, 1919–1920. By Lieut.-Colonel H. de Watteville, C.B.E. Maps. 10s. 6d. 8vo. (Constable & Co., Ltd.) London, 1925. (Presented by the Publishers.)

THE RIFLE BRIGADE CHRONICLE, 1924. Edited by Major H. G. Parkyn, O.B.E. 8vo. London, 1925. (Presented by the Committee of the Rifle Brigade Club.)

OFFICIAL HISTORY OF AUSTRALIA IN THE WAR OF 1914–18. VOL. II. THE STORY OF ANZAC. By C. E. W. Bean. 30s. 8vo. Sydney, 1924.

PALESTINE OF THE MANDATE. By W. B. Worsfold. 21s. 8vo. London, 1925.

COMMANDING AN AMERICAN ARMY. By Major-General H. Liggett. 8vo. (Houghton Mifflin Co.) Cambridge, 1925. (Presented by the Publishers.)

ROBERT E. LEE THE SOLDIER. By Major-General Sir F. Maurice, K.C.M.G., C.B. 15s. 8vo. (Constable & Co.) London, 1925. (Presented by the Publishers.)

HULL DOWN: REMINISCENCES OF WIND-JAMMERS, TROOPS AND TRAVELLERS. By Sir B. Hayes, K.C.M.G., D.S.O. 10s. 6d. 8vo. London, 1925.

A SKETCH OF THE HISTORY OF INDIA, 1858–1918. By H. Dodwell, M.A. 6s. 8vo. London, 1925.

A large collection of books was presented by His Grace the Duke of Buccleuch among which were the following:—

A LIST OF THE OFFICERS OF THE MILITIA, THE GENTLEMEN AND YEOMANRY CAVALRY AND VOLUNTEER INFANTRY OF THE UNITED KINGDOM. 8vo. London, 1807.

A COLLECTION OF ORDERS, REGULATIONS AND INSTRUCTIONS FOR THE ARMY ON MATTERS OF FINANCE AND POINTS OF DISCIPLINE. 8vo. London, 1807.

OBSERVATIONS ON THE DUKE OF RICHMOND'S EXTENSIVE PLANS OF FORTIFICATIONS. 8vo. London, 1794.

OBSERVATIONS ON A MACHINE FOR THE SPEEDY CONVEYANCE OF TROOPS. By Lieut.-Colonel P. Crichton. 8vo. Edinburgh, 1804.

STANDING ORDERS FOR H.R.H. THE PRINCE OF WALES'S REGIMENT OF LONGFORD MILITIA. 8vo. Dublin, 1804.

STANDING ORDERS FOURTH REGIMENT NORTH BRITISH MILITIA. 8vo. Edinburgh, 1799.

STANDING ORDERS TENTH OR EDINBURGH REGIMENT OF NORTH BRITISH MILITIA. 8vo. Dumfries, 1799.

A TREATISE UPON THE DUTIES OF LIGHT TROOPS. Translated from the German of Col. Von Ehwald. 8vo. London, 1803.

THE PROCEEDINGS OF THE GOVERNOR AND ASSEMBLY OF JAMAICA IN REGARD TO THE MAROON NEGROES. 8vo. London, 1796.

THE EXPERIENCED OFFICER; OR, INSTRUCTIONS BY THE GENERAL OF DIVISION F. WIMPFFEN TO HIS SONS AND TO ALL YOUNG MEN INTENDED FOR THE MILITARY PROFESSION. 8vo. London, 1804.

THE OFFICERS' MANUEL IN THE FIELD. 8vo. London, 1798.

A COLLECTION OF THE STATUTES IN FORCE RELATING TO THE MILITIA OF ENGLAND. 8vo. London, 1808.

THE SOLDIER'S FRIEND; OR, THE MEANS OF PRESERVING THE HEALTH OF MILITARY MEN. By W. Blair. 8vo. London, 1798.

INSTRUCTIONS FOR HUSSARS AND LIGHT CAVALRY ACTING AS SUCH IN TIME OF WAR. By G. H. Rose. 8vo. London, 1799.

A MILITARY DISSERTATION CONTAINING A PLAN FOR RECRUITING THE BRITISH ARMY AND IMPROVING ITS ESTABLISHMENT. By Colonel. S. Douglas. 8vo. London, 1781.

INSTRUCTION CONCERNANT LE SERVICE DE L'INFANTERIE LÉGÈRE EN CAMPAGNE. 8vo. London, 1801.

A DESCRIPTION OF RIFLED ORDNANCE. By J. Lind, M.D. 8vo. Edinburgh, 1776.

CARTE GÉNÉRALE DU THÉÂTRE DE LA GUERRE EN ITALIE, 1792–98. By B. Dalbe. Folio. Paris, n.d.

REGIMENTAL HISTORIES.

WITH THE 10TH ESSEX IN FRANCE. By Lieut.-Colonel T. M. Banks, D.S.O., M.C., and Captain R. A. Chell, D.S.O., M.C. Second edition. 7s. 6d. 8vo. (Gay and Hancock, Ltd.) London, 1925. (Presented by the Publishers.)

A BRIEF HISTORY OF THE ROYAL BOMBAY SAPPERS AND MINERS. 8vo. (R. Bombay Sappers and Miners Press.) Kirkee, 1924. (Presented by the Commandant Royal Bombay Sappers and Miners.)

MANUSCRIPT.

LETTER DATED 12TH JULY, 1815, FROM PRIVATE W. PRETCHARD (2ND BATTALION 3RD FOOT GUARDS) TO HIS WIFE, GIVING AN ACCOUNT OF THE BATTLE OF WATERLOO. (Presented by Sir Whitworth Wallis, F.S.A.)

LETTER DATED 15TH NOVEMBER, 1808, FROM LORD CASTLEREAGH TO LIEUT.-GENERAL SIR J. MOORE, GIVING INSTRUCTIONS FOR CONDUCT OF CAMPAIGN. (Presented by General Sir J. A. L. Haldane, G.C.M.G., K.C.B., D.S.O.)

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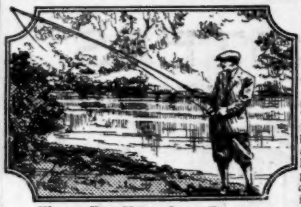

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